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BUYING BROADBAND

Four retailers describe how they chose the broadband links between their stores and headquarters. Page 62

GLAMOUR JOBS

Techies lust after jobs at hot vendors, but what's it like to really work there? Page 50

HIDDEN Y2K THREAT

Small suppliers may need help from their better-heeled customers to lick the year 2000 problem. Page 44

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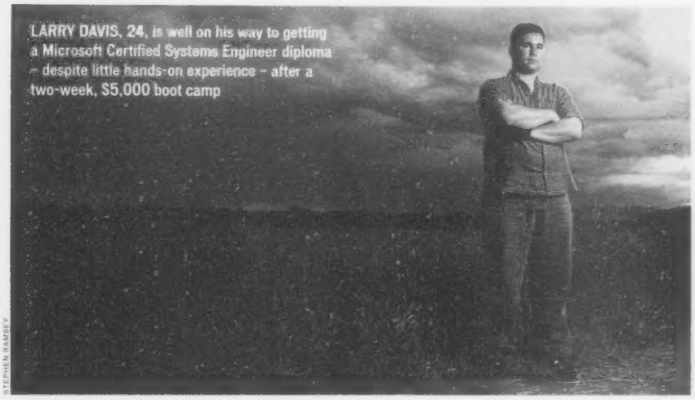

LARRY DAVIS, 24, is well on his way to getting a Microsoft Certified Systems Engineer diploma – despite little hands-on experience – after a two-week, $5,000 boot camp

STEPHEN RAMSEY

PAPER TIGERS

"BECOME AN MCSE IN JUST TWO WEEKS!" says the come-on for one of the boot camps that promise bricklayers and auto mechanics that they, too, can be a Microsoft Certified Systems Engineer. Critics say the value of vendor-run IT certifications has diminished because the diplomas are too easy to get and require more book smarts than practical experience. *Report is on page 24.*

COMPAQ CEO MUST WIN USER TRUST

Capellas: Digital integration needs more work

BY MATT HAMBLEN AND JAIKUMAR VIJAYAN

As a former CIO with close to two decades of frontline experience, Compaq Computer Corp.'s new CEO may benefit from his information technology credentials. But it will take a Hercules to buff up Compaq's earnings and woo back big customers lost over months of turmoil.

That was how analysts and users assessed new CEO Michael D. Capellas, 44, who was promoted Thursday from his post as Compaq's acting chief operating officer in a unanimous vote by the Compaq board.

"His biggest focus will need to be on rebuilding confidence in the company by both customers and investors," said Joseph Pollizzi, former president of the Digital Equipment Computer User Society. Pollizzi is deputy head of science and engineering systems at the Space Telescope Science Institute in Baltimore.

Users have fretted over Compaq's failure to integrate Digital Equipment Corp., which it purchased a year ago for $10 billion [News, April 19, 1998]. Capellas acknowledged that concern and said more

Compaq, page 89

CIO to CEO

Michael D. Capellas, 44, of Houston

- Promoted last week to CEO from acting COO; joined Compaq in 1998 as CIO.
- Oracle Corp. senior vice president for global energy (1997-98) and SAP America director of supply-chain management (1996-97).
- In 1996 helped found and was managing partner of IT consulting firm Benchmarking Partners.
- Was the first corporate director for IS at Schlumberger Ltd., an electronics and services firm (1981-96).

RIGHTS USURPED UNDER LICENSE PLAN

Proposed rules said to favor software vendors

BY THOMAS HOFFMAN AND PATRICK THIBODEAU

This week, an advisory commission on state laws will meet in Denver to vote on a software licensing proposal that critics fear will strip away many of the rights currently held by software customers.

Although an endorsement of the Uniform Computer Information Transactions Act by the state commissioners won't make the proposal a law, it would carry a lot of weight with state legislators, who are expected to begin voting on the measure this fall.

If UCITA is endorsed by the state commissioners, it's likely to be approved in at least a few states, including Washington, said sources close to the discussions. Some states hope to lure software vendors to set up significant offices within their borders, "much like how companies incorporate in Delaware to take advantage of Delaware corporate law," said Cem Kaner, a user advocate

Software Licensing, page 89

ACM'S BARBARA SIMONS: Proposal "would make it easier for vendors to produce bad software"

NOVELL GEARS UP FOR PRODUCT PUSH

NetWare upgrades try to beat Win 2000 to punch

BY SHARON GAUDIN

Novell Inc. hopes to steal some of the thunder from rival Microsoft Corp. by pre-empting the upcoming release of Windows 2000 with its own slate of announcements and betas throughout the summer. The barrage should start next week.

Although corporate users said they're looking forward to the new NetWare features and products, they also said Novell's announcements won't necessarily distract them from buying in to Windows 2000. Most companies run heterogeneous shops with Windows NT and NetWare running side by side, and they don't foresee any change.

"Oh, of course we're looking to get some products out there

Novell, page 16

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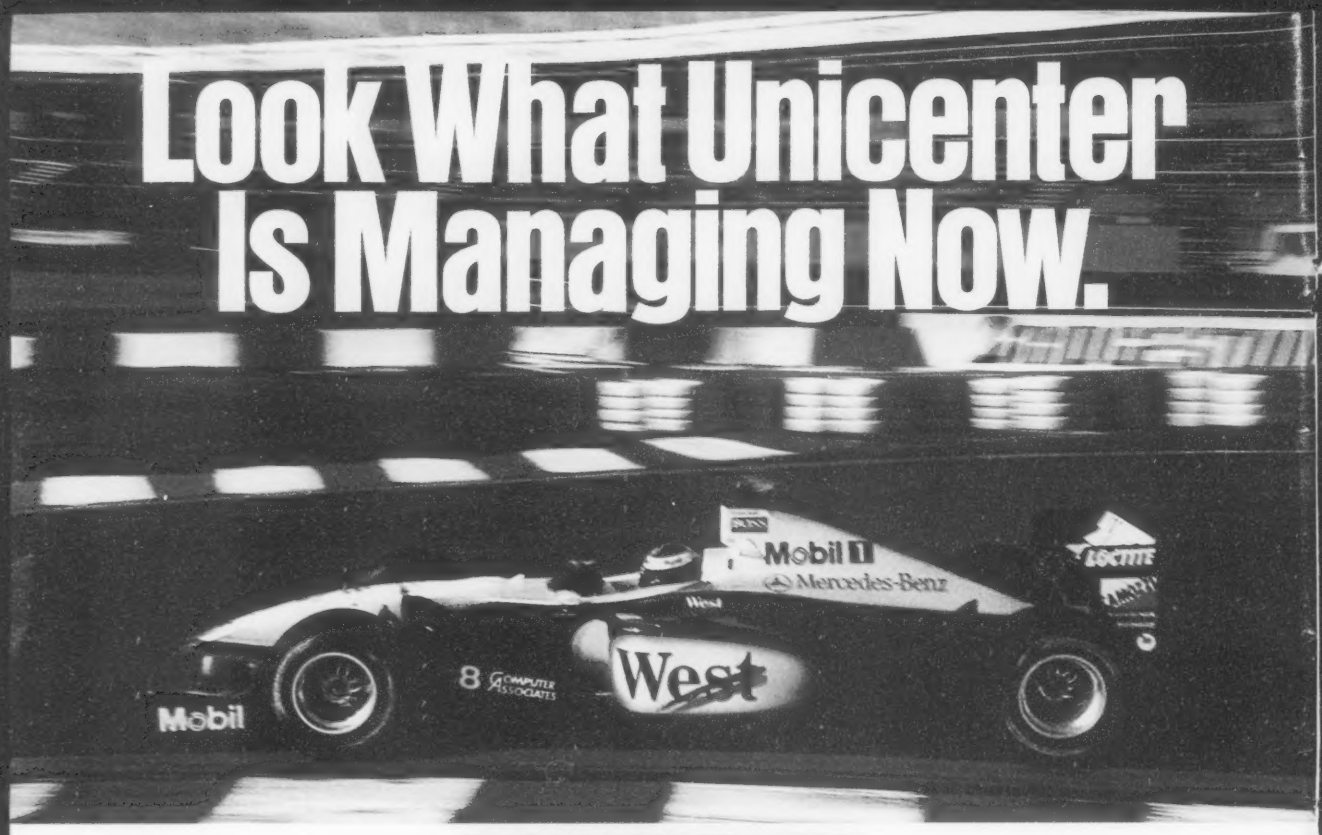

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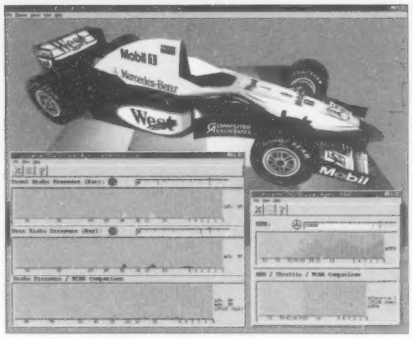

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DAN GILLMOR

Red alert: Potential new laws would give software vendors an edge over you, the columnist warns. Page 32

REAL-WORLD RESEARCH

Under the guidance of Paul Horn (pictured), IBM Research produced chess champion Deep Blue, the world's first copper computer chip and the first provably unbreakable cryptosystem. His latest challenge is to "get advanced stuff into the market sooner." Page 68

ERIN GO BACK

Ireland is calling its own IT professionals (and our No. 2 source of H-1B visas) back home to ease its skills shortage. Page 48

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"THE GLIB PEOPLE WHO SAY THEY'LL JUST FIND ANOTHER SOURCE ARE NOT IN THE REAL WORLD OF SUPPLY MANAGEMENT."

CINDY SIM, Y2K PROJECT MANAGER AT DEERE & CO., ON THE DIFFICULTY IN DROPPING A LONGTIME SUPPLIER BECAUSE OF POTENTIAL YEAR 2000 PROBLEMS. SEE PAGE 45.

AT DEADLINE

American Express Opens Online Bank

American Express Co. has launched a separate, online bank that will accept deposits, provide free online bill payments and offer certificates of deposit and money-market funds. American Express Membership B@nking will operate as a stand-alone business unit.

Congress Eyes Domain Name Dispute

The Internet Corporation for Assigned Names and Numbers (ICANN) has raised eyebrows in Congress with its closed-door meetings and its plan to charge $1 for domain name registrations. House Commerce Committee Chairman Tom Bliley (R-Va.) asked the Commerce Department to ensure that the Internet's stability isn't threatened by the disagreements between ICANN and Network Solutions Inc., which issues Internet addresses.

Microsoft-AOL Spat

Microsoft Corp. has unveiled MSN Messenger, its long-awaited entry into the instant messaging fray. The free product, linked to the company's HotMail e-mail service, was designed to connect to America Online Inc.'s Instant Messenger. But on Friday morning, MSN Messenger users were cut off from AOL Instant Messenger amid reports that AOL allegedly wired its servers to detect and reject MSN Messenger users. AOL declined requests for interviews at press time.

Short Takes

PROVIDIAN FINANCIAL CORP. said a programming error caused it to mistakenly charge late fees on 700,000 bills that were paid on weekends. The San Francisco firm, which has 10 million customers, said it processed 90 million payments during the period in which the overbillings occurred. . . . Florist service FTD INC. in Chicago will place 26,000 HEWLETT-PACKARD CO. Vectra PCs in 20,000 shops across North America. FTD will deploy a new Mercury Wings business system on the Windows NT-based PCs via HP ProCurve hubs.

SAP Revamps Prices, Adds Targeted Bundles

New scheme rolls out in September; users say plan could better meet their needs

BY CRAIG STEDMAN

SAP AG FINALLY PLANS to launch a major revamp of its software packaging and pricing in September, a year after it first said the changes were in the works.

SAP last week spelled out some of the upcoming changes, which include the creation of 120 software bundles that cut across all of its applications. Under the new pricing and packaging scheme, System mySAP.com, users will be able to purchase bundles designed for different workers and install any of the functionality that comes with them instead of buying R/3 and other SAP applications separately.

SAP is still working out the details of the new pricing with users. But on a per-user basis, software costs should "be pretty much in the same ballpark" as the prices customers pay now, said Guenther Tolkmit, a senior vice president at SAP.

Several R/3 users said many questions still need to be answered, but they added that the new approach sounds like it has the potential to make buying multiple SAP applications more financially palatable than it is now.

"It seems a little ambiguous," said Harold Goldberg, director of information technology at Bally USA Inc. in New Rochelle, N.Y. "I'd really like to see how they come up with [the new pricing] formula. It's going to be a challenge."

JUST THE FACTS

New Price Plans

How it prices now: Customers buy R/3 and other SAP applications separately, with license fees based on the number of registered users for each product.

The new approach: The software will be sold in bundles that are supposed to include all of the tools different end users need to do their jobs.

What's still in the works: How the 120 bundles will be priced in order to avoid overwhelming users and SAP's sales force with too many options.

More Cost-Effective

But being able to buy software bundles tailored to the different jobs that business users do could prove to be a much more cost-effective way to purchase SAP's applications, Goldberg said.

Bally Management Ltd., the Swiss parent of Bally USA, now pays for pieces of R/3 that it doesn't use, Goldberg said. And other applications, such as SAP's data warehousing package, are too expensive for the shoemaker to buy as stand-alone products, he added.

"If they're going to look at our business and come up with prices based on the things we're actually going to use, I'm all for that," Goldberg said.

Gwen Babcock, senior vice president of information systems at Pacific Coast Feather Co., said the new strategy could be helpful if it enabled the Seattle-based pillow maker to buy only the specific pieces of SAP's data warehousing and supply-chain planning applications it needs.

But installation complexities are potentially "a huge red flag," Babcock said. "I know from experience that you can't always just go in and turn on one little thing in R/3. There's all kinds of core [modules] that you have to put in place first."

Even inside SAP, the bundling approach still appears to be "a moving target," said John Hagerty, an analyst at AMR Research Inc. in Boston. "Every time we talk to SAP people, we get a slightly different spin on it," he said. "I don't think they have all the answers yet themselves."

Tolkmit said the full System mySAP.com plans should be in place by the time of the company's Sapphire '99 user conference, scheduled for September in Philadelphia.

SAP now has "a high level of confidence that this job is doable," Tolkmit said. "The rest is detail and refinement."

Big Users Mull Outsourcing E-mail, but Only Some Pieces

BY DOMINIQUE DECKMYN

Two-thirds of the *BusinessWeek* Global 1,000 might consider outsourcing their messaging systems, according to a study released last week, though many are likely to farm out pieces of their systems rather than the whole thing, analysts and users said.

The survey comes at a time when numerous providers are crowding the market to offer a variety of e-mail hosting services, from mailboxes and mail filtering to remote server management.

E-mail outsourcing "is happening mainly at small to medium-size businesses, but corporations are also considering it," said Laura Ventura, director of market research at Radicati Group Inc. in Palo Alto, Calif., which conducted the survey. In interviews, 66% of information technology executives at 54 Global 1,000 firms said they would consider outsourcing messaging.

Various vendors serve the corporate market. Control Data Corp., IBM and Compaq Computer Corp., for instance, have for many years offered a range of e-mail outsourcing services such as hosting messaging servers or remotely managing servers at the customer's site.

But the burgeoning market for hosted mailboxes has attracted a wide range of new players that want to lay claim to big business, even as they now serve the lower end. They include Internet service providers like PSINet Inc., telephone companies like BellSouth Corp. and GTE Corp., and vendors such as Critical Path Inc. and Electric Mail Co.

Small and midsize businesses often require only basic e-mail, which the vendors offer for $5 or less per mailbox per month. Large corporations are less likely to outsource their entire messaging infrastructure. Instead, they're more likely to outsource the "pain-in-the-neck" aspects of their messaging systems that are difficult to manage internally, said Joyce Graff, an analyst at Gartner Group Inc. in Stamford, Conn. "The 3,000-person campus in Chicago is not the problem, but what about the three-person office in Moscow?" she said. Other services likely to be outsourced, analysts agreed, are so-called spam messages, content filtering and security infrastructure.

Diana Fish, a network administrator at Premium Financing Specialists Inc., an insurance premium financing company in Kansas City, Mo., said she hasn't considered outsourcing her internal e-mail network, but might if the price was right. The company outsources its Internet mail to Allegro Inc., from which it rents a content-filtering service.

Jim Scott, vice president of information services at Liberty Northwest Insurance Corp. in Portland, Ore., said he never considered outsourcing e-mail. Managing his 450 e-mail users is "not even a full-time job," and hardware costs are minimal, he said. "I would look at it" if an outsourcing vendor offered additional services.

Message Service

Top reasons for or against outsourcing messaging

PROS
Lower costs
Improves reliability
Improves staff utilization
CONS
Loss of control
Potential for hidden costs and unclear contracts
Increased security risks

Base: Interviews with 54 IT executives at *BusinessWeek* Global 1,000 companies

SOURCE: RADICATI GROUP, PALO ALTO, CALIF.

"At Sony, we installed WebFOCUS at 9:30.

I developed reports myself and put them on the Web by noon."

How does Sony Electronics put so many great products in the hands of consumers? They use WebFOCUS to put up-to-the-minute inventory data in the hands of their managers.

WebFOCUS is a powerful Web reporting and analysis system that can access any database and platform, so it was easy to consolidate data. And it's so productive developers were able to put new reports on their intranet in minutes.

Gary Fischer, Data Warehousing Manager at Sony Electronics says, "It gives everyone from senior executives to operational staff the answers they need when they need them."

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United Plans Full-Service Travel Site

Despite pending shakeout online

BY STACY COLLETT

United Air Lines Inc.'s joint venture with Internet retailer Buy.com Inc. to create a full-service online travel site is a smart move that will lower ticket distribution costs and add revenue, industry watchers said. But turbulence could lie ahead as the online travel industry shakes out.

Announced last week, Buy-Travel.com, which will be available by year's end as part of the Buy.com retail site, will sell tickets for all major airlines as well as book hotels, car rentals and cruises. It will also list "deeply discounted" United fares that aren't available at third-party Web sites, the carrier said.

The move comes as many airlines and travel entities are looking to the Internet to lower ticket distribution costs. "Some 23% of airlines' total expense is engulfed in distribution," said Lew Elsworthy, an airline industry consultant at Arthur D. Little Inc. in Cambridge, Mass. A traditional airline ticket transaction on an older system costs $8 to $9. Internet transactions cost $2 to $3, he said.

Most major U.S. airlines sell excess ticket inventory through services like Priceline.com Inc., where customers name their price for an airline ticket. United is taking a different tack with its site, but the new venture doesn't rule out future agreements with Priceline, said United spokesman Kurt Ebenhoch.

Web Travel Site Leaders

1. Yahoo
2. Travelocity
3. Expedia
4. Southwest Airlines
5. Excite
6. Netscape
7. American Airlines (tie)
7. Delta Air Lines (tie)
9. Infoseek
10. AltaVista
11. **UNITED**

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

Shakeout Coming

United's plan to enter the full-service online travel market also comes at a time when industry watchers warn of a shakeout in the market.

A study by Forrester Research Inc. in Cambridge, Mass., lists nine travel sites including Yahoo Inc., Travelocity and Microsoft Corp.'s Expedia as "locked-in leaders" in online travel. Those sites will dominate the category for at least the next several years because of their audience reach and number of buyers who book travel, the survey predicted. United is in the "middle ranks" at No. 11, the survey said (see chart).

Details of the Buytravel.com joint venture are unclear; no decisions have been made about Web hosts, global distribution systems or other information technology issues.

Corrections

A July 12 Business story ["Avon Calls for Revamp of its Worldwide IT," page 38] mischaracterized Avon's plans for client/server systems and employees. Avon's plans include replacing its legacy systems, standardizing on Unix hardware systems and Oracle Corp. relational databases, consolidating 35 data centers into about 10 and retraining 1,300 IT employees on client/server, e-commerce and supply-chain technologies.

A June 28 Business feature ["Super Recruiters," page 56] misidentified Beverly Lieberman's husband and business partner. He is Roger Rowell. The story also misstated some facts related to Lieberman's "toughest hire." It stated that the CIO she found for PG&E Energy had gone to school and married his wife in Houston, when he did neither there. The article also said the CIO and his wife had wanted to move back to Houston, when, in fact, they were persuaded to return to Houston.

Neural Networks, 3-D Highlight CA World

But few blinded by the flash of technology

BY SAMI LAIS
NEW ORLEANS

NEURAL network technology and 3-D visualization were the sizzle at Computer Associates International Inc.'s annual CA World conference last week.

"The dreamers and the visionaries will prevail," said Charles B. Wang, CEO and president, in his keynote speech. "The day of traditional thinking is over." The rest of the conference seemed structured to reiterate that message.

CA uses neural network software called Neugents in the latest versions of Unicenter to analyze server use and network behavior. And although Unicenter TNG has offered 3-D server views for several years, 3-D visualization will become even more ubiquitous, Wang predicted, because it will play an important role in e-commerce.

In October last year, CA bought and merged ViewPoint DataLabs International Inc., a 3-D digital content creation and publishing company, and 3Name3D, a 3-D design and production firm, to form CA subsidiary Viewpoint Digital Inc. in Orem, Utah.

One of its first clients is The Sharper Image, for which Viewpoint provided small 3-D images of products to post on the company's Web site. After downloading a free viewer, customers can look at the products in three dimensions, rotate them and change their colors.

CA'S CHARLES WANG: "The dreamers and visionaries will prevail"

Meredith Medland, the retailer's Internet director, said visitors at Web sites with 3-D content stay 50% longer than at sites without it. And she attributed a recent sharp revenue increase to sales made because of the 3-D features.

CA also announced the start of beta-testing programs for its Jasmine TND application development software. But it will be "at least a quarter" before a final version will ship, said D. Carl Hartman, CA's vice president of marketing.

The new version will include Neugents, extensive use of 3-D technology and repository technology from CA's acquisition of Platinum Technology Inc. Jasmine TND offers "major, substantial improvements" over the initial Jasmine product, said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

But most network and systems administrators were looking not for the sizzle, but the steak.

With a full range of isolated mainframe and midrange tape systems to manage, Michael Gardner, data storage technician at United Parcel Service of America Inc. in Alpharetta, Ga., said he just wanted "a way to manage it all." However, Gardner said he will wait until after Jan. 1 — and for Unicenter TND to be released and subsequently develop a track record — before making any moves.

CA to Continue Platinum Line

Users encouraged but still seek details

BY SAMI LAIS
NEW ORLEANS

Computer Associates International Inc. last week provided users with the anxiously awaited plans for major software products gained in its acquisition of Platinum Technology Inc. In most cases, users were offered the choice of continuing to use and receive support for existing Platinum tools or upgrading to versions of the tools as they're integrated with CA tools.

In other words, the Platinum tools will survive and be integrated, not subsumed, said Yogesh Gupta, CA's senior vice president of product strategy, at CA's annual conference. For example, Platinum's BPWin business modeling software explains "how my business process will flow," he said. Integrated with Unicenter, it will "let me view my business process, and then we manage it."

Similarly, the widely used Platinum Autosys job scheduler will be integrated with Unicenter and thus will link with a variety of CA scheduling tools. But it will also continue to be offered as a standalone job management product, CA said.

Members of the Platinum Repository Users Group (PRUG), who had been "completely shocked" by news of CA's acquisition of Platinum, were encouraged by what they learned at the conference, said PRUG Executive Council member Craig Bell.

CA promised to continue to develop the Platinum repositories, retain key Platinum developers and seek users' input in the development process, Bell said. "But now we want to know the details," he added.

Road maps for Platinum's ADvantage, data warehousing, enterprise performance, database management, security and DB2-related products are available at CA's Web site *(www.cai.com)*.

"Over the next three to six months, we'll contact customers one-on-one" to discuss their use of the rest of Platinum's 200 tools, Gupta said.

You can't run an

e-business

using client/server technology.

"SAP IS THE LEADING GLOBAL PROVIDER OF CLIENT/SERVER BUSINESS APPLICATION SOLUTIONS." —*Source: SAP Web Site*

"PeopleSoft's strategy includes a dedicated focus on client/server applications..." —*Source: PeopleSoft Web Site*

"BAAN IS A LEADING PROVIDER OF ENTERPRISE BUSINESS MANAGEMENT SOFTWARE FOR AN OPEN SYSTEMS, CLIENT/SERVER COMPUTING ENVIRONMENT." —*Source: Baan SEC Filing 5/4/98*

"The Siebel Enterprise Applications are comprised of a broad range of advanced client/server application products..." —*Source: Siebel SEC Filing 11/13/98*

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BRIEFS

Counties to Ask Feds To Back Net Sales Tax

The National Association of Counties plans to ask Congress to require companies to collect sales tax on goods sold either over the Internet or by mail order. The group, at its annual meeting in St. Louis last week, said states are now losing more than $4 billion in sales tax.

Under current law, a seller has to collect a state sales tax only if the seller has a physical presence in that state.

Revenue of Online Travel Service Climbs

Travelocity.com last week said it recorded $301 million in sales for the first half of the year, topping the $285 million in sales it generated last year. And, for the week of July 16, the Fort Worth, Texas-based online travel service said it garnered a record $17 million in revenue. The company, which is owned by Sabre Group Inc., didn't say whether it was profitable.

Stock Network Debuts

Fidelity Investments and The Charles Schwab Corp. are joining with two financial services firms to create an electronic communications network (ECN).

ECNs allow stock trading outside conventional exchanges and markets such as the New York Stock Exchange Inc. or Nasdaq Stock Market Inc. Launching the venture with Boston-based Fidelity and Schwab in San Francisco were Donaldson, Lufkin & Jenrette, and Spear, Leeds & Kellogg, both in New York.

Short Takes

A FEDERAL COMMUNICATIONS COMMISSION working paper says the success of the Internet hasn't been an accident but rather the result of decisions by federal officials to not regulate it. . . . Internet server and e-commerce software products from SUN MICROSYSTEMS INC. and NETSCAPE COMMUNICATIONS CORP. will be rebranded under the name iPlanet.

Property Insurers May Face Y2K Suit Barrage

GTE, Xerox wield 'sue-and-labor' clause in controversial bid to recoup bug fix costs

BY THOMAS HOFFMAN

A FEW well-known companies, including Xerox Corp. and GTE Corp., have filed lawsuits against their property insurance companies in an effort to recoup hundreds of millions of dollars in year 2000 remediation costs.

The companies are trying to recover those costs under a provision in their property insurance policies known as a "sue-and-labor" clause. Under that section of a policy, customers can file claims to retrieve costs used to protect property in the face of imminent damage (see chart).

Some legal experts and Y2K pundits said plaintiffs like GTE may have a case. If one court sides with GTE or Xerox, "it could become a groundswell" of litigation, said Robert Carter, an attorney and partner at McKenna and Cuneo LLP in Washington, who has written an article about the topic that will appear in the September issue of the *ABA Journal*.

Others argue that a sue-and-labor clause is intended for insurance customers to recover costs spent to avoid expected losses, such as the costs of "boarding up windows before a hurricane," said Tom Brunner, a partner at Wiley Rein & Fielding, a Washington-based law firm that's defending American Guarantee, the insurer named in the Xerox suit.

As might be expected, insurance companies are fighting the lawsuits and claims vigorously. The day before Xerox sued American Guarantee on July 2 for the $183 million Xerox has spent to repair and replace some of its own computer systems, the insurer filed its own suit against Xerox in New York. American Guarantee's lawsuit charged, among other things, that Xerox's claim "was very late," Brunner said.

Under state law in New York, where American Guarantee filed its suit against Xerox, an insurance customer must notify its insurer of a potential loss within 60 days. Xerox started Y2K work in 1993 but didn't begin its Y2K remediations until 1996. Xerox didn't file a claim against American Guarantee until March 17, 1999.

Had Xerox's legal team examined the insurance policies when the company's year 2000 project began, "they might have been in a better position to collect on this insurance policy," according to a report written on the topic by Giga Information Group Inc. in Cambridge, Mass.

The year 2000 liability legislation President Clinton signed into law last week (Briefs, page 14) may also help insurance firms defend against sue-and-labor lawsuits, said Jeff Jinnett, a New York attorney. For example, Section 9 of the new law puts the onus on plaintiffs to prove their damages. "My sense is that this [provision] may benefit the insurers," said Jinnett, who typically represents insurance companies in those types of lawsuits.

JUST THE FACTS

Sue-and-Labor Clause

Example of a "sue-and-labor" clause in a property insurnce policy:

In case of **actual or imminent** *loss or damage, it shall be* **lawful and necessary** *for the Insured, their factors, servants and assigns, to* **sue, labor and travel** *for, in and about the* **defense, safeguard and recovery** *of the property insure hereunder . . .*

SOURCE: WILEY REIN AND FIELDING, WASHINGTON

Corporate Y2K Chiefs Say They're Ready . . .

. . . It's the rest of the world they worry about

BY PATRICK THIBODEAU
WASHINGTON

George Surdu, Ford Motor Co.'s Y2K manager, confidently outlined Ford's repair effort last week before a U.S. Senate committee investigating the year 2000 problem. But when it came to assessing the global impact of Y2K on Ford, Surdu's confidence ebbed.

"The interdependency of the entire supply chain does represent the greatest risk to Ford," Surdu acknowledged. Extended infrastructure failures — such as electric, gas or water — in one of the foreign countries in which the company operates could affect manufacturing, he said.

Ford, Philip Morris Cos., Praxair Inc. and some of the other companies that testified before the Senate last week obviously are proud of their Y2K efforts — and didn't mind boasting about them.

But those companies also made it clear that the year 2000 problem isn't entirely in their control.

For instance, despite his company's best efforts to assist and educate suppliers about Y2K, Kevin Click, who heads Philip Morris' Y2K effort, said 700 of the company's 6,000 "highly critical" business partners are likely to suffer year 2000-related failures.

Most of those troubled suppliers are overseas, and some "hadn't heard of Y2K until we briefed them," Click said.

None of the corporate Y2K chiefs disputed the U.S. State Department's grim assessment of international Y2K readiness. "The global community is likely to experience some Y2K-related failures in every sector, country and region," said Jacquelyn Williams-Bridgers, the State Department inspector general, who also testified last week.

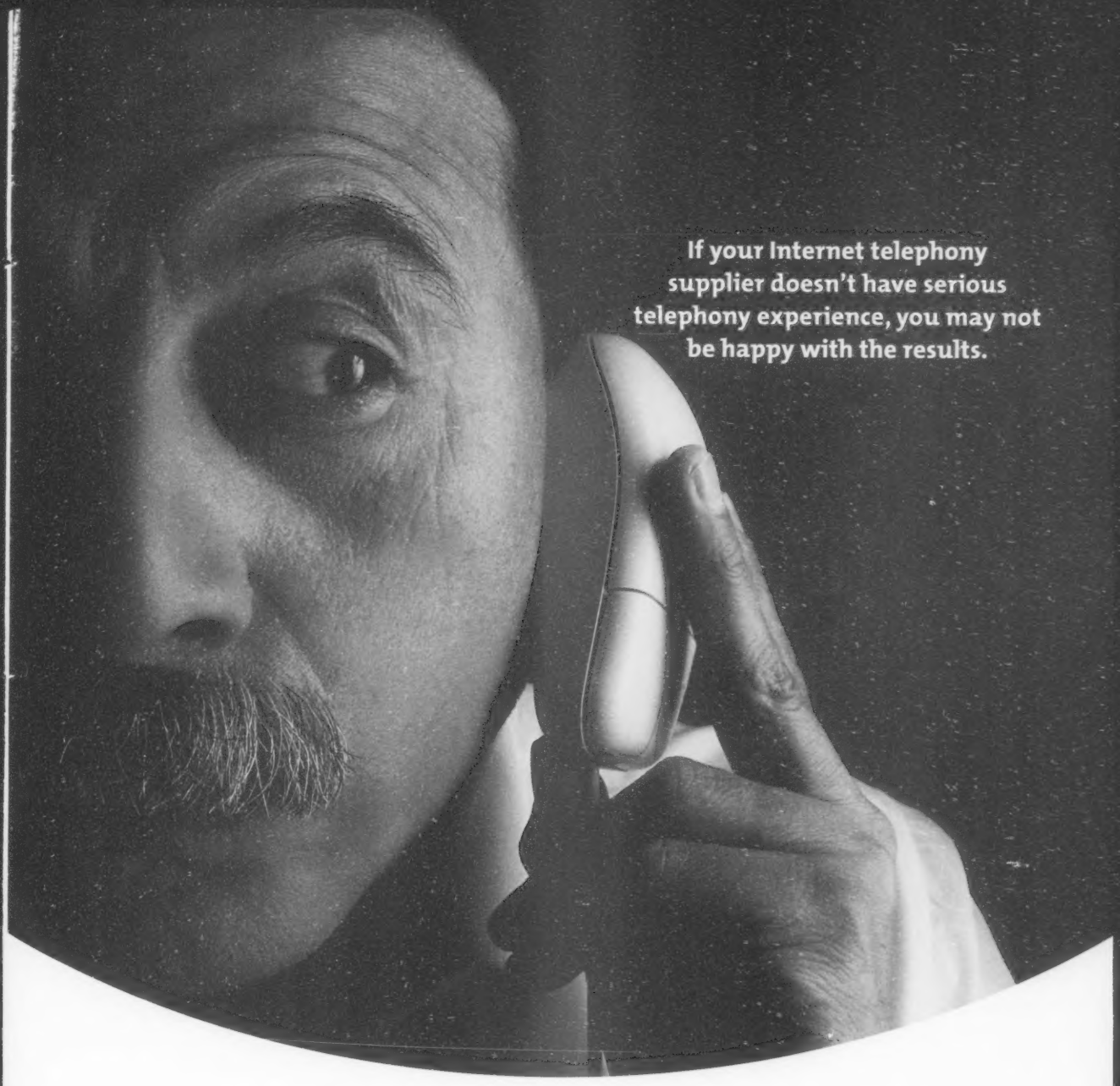
Disruptions in global trade are likely, she warned.

Philip Morris' contingency plans include stockpiling raw materials and finished goods, especially coffee and cocoa beans. It's developing workaround contingency plans with suppliers and is moving finished products through the supply chain to bring them as close to the consumer as possible, Click said.

Ahold USA Inc., the fourth-largest grocer in the U.S., believes there's a "real risk" of year 2000 disruptions in the grocery industry, said Patrick Roberts, senior vice president. But the company is looking for alternative suppliers, he said, and already has a "significant inventory" of spices, sugar, rice and other products produced overseas.

Global Firms' Y2K Forecasts

COMPANY	OUTLOOK
PHILIP MORRIS COS.	Expects 700 of its 6,000 "highly critical" business partners to suffer Y2K failures.
AHOLD USA	The fourth-largest grocer in the U.S. says it has enough inventory of international products, such as spices, sugar and rice, to provide a Y2K buffer. But it worries that media reports could prompt panic buying.
FORD MOTOR	Most worried about extended infrastructure failures, such as electric, gas and water, in foreign nations.
PRAXAIR	The largest industrial gases company in North and South America says it expects that some production plants will likely experience temporary interruptions of power and other utilities.



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Microsoft Turns to EDS for Installation, Integration Help

BY SHARON GAUDIN

Corporate users are glad Microsoft Corp. is gearing up to offer more help on large software installations, but some wish that help was coming directly from the company.

Indeed, in an interview last month, a Microsoft spokesman said the company was focused on handling service for large customers in-house. But last week, the company explained that it doesn't consider installation and integration to be a service issue and that it is looking to its Electronic Data Systems Corp. alliance as another way to help customers.

Last week, Microsoft announced an enterprise support alliance with EDS, a giant in the systems integration field. The deal calls for Microsoft to train 7,000 service personnel for EDS, pass on to EDS large users with installation or integration needs for a variety of products and give EDS access to early software. The deal also will take some of the support strain off Microsoft, which is already stretching its support division with stated new promises to "delight" and care for customers.

"It's always better when you get information and help right from the vendor," said Ruddy Jabbour, an integration laboratory manager at General Motors Acceptance Corp., the financing arm of General Motors Corp., in Detroit. "We deal with EDS a lot, and I'm sure they're capable. It's just good to deal with the people who developed the application."

More Support Planned

Earlier this summer, Microsoft unleashed a three-year, five-stage program designed to bolster its service and support efforts, long named as a top complaint among large corporate users [News, June 21]. The program includes hiring additional support personnel, providing more in-depth training, including mentoring, and handling more large customer calls for service in-house.

The new partnership with EDS could mean extra hands on deck to help companies integrate Microsoft's upcoming Windows 2000 operating system. Windows 2000 is expected to have two to three times as many lines of code as its predecessor, Windows NT 4.0, and is generally expected to be one of the industry's toughest installs.

"Windows 2000 is going to have a huge impact. Active Directory is going to have a huge impact," said Neil MacDonald, a vice president at Gartner Group Inc. in Stamford, Conn. "Microsoft needs more service, and Windows 2000 is going to make that worse. They're looking for some help."

Todd Richter, a PC specialist at Baystate Health Systems in Springfield, Mass., agreed. "Provided they know what they're doing, I will just want someone to help me," he said.

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With SAP and DB2, she gets more for her money.

His system needs to work 24 hours a day. That way he only has to work eight.

His company's revenue is under $100 million. Over one-third of SAP installations are for businesses just his size.

80% of the Fortune 500 rely on IBM data management software. And if it's good enough for them, it's good enough for her.

Her company runs on the IBM OS/400 platform. Oracle doesn't.

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For more information on SAP and DB2, visit www.sap.com/db2.

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Compaq Notebooks Ease Upgrade Path

New models offer interoperable drives, more compatibility to aid system managers

BY MATT HAMBLEN

COMPAQ Computer Corp. today will announce three laptop computers designed to ease laptop management and lessen angst over upgrades for corporate information technology departments.

The models all have interoperable drives and other components, and two are backward-compatible with existing Compaq docking stations. IT managers have begged for years for such features to lower maintenance and upgrade costs, analysts and users said.

Nike Inc. in Beaverton, Ore., is buying hundreds of the new laptops as part of a multiyear, multimillion-dollar agreement to standardize on Compaq computers for its 25,000 workers in 35 countries. "Compared to what we do now with several laptop brands, this should be a significant total cost of ownership savings," said Mark James, Nike's director of IT for global product creation.

Three Models

One source of the savings: Nike will need to load only one software image for all the Compaq laptop models, instead of several for different models. "We found Compaq very understanding of that need," James said.

The new laptops in the Armada line range from a lightweight, 3-lb. road warrior model, the M300, to a higher-performance model designed for mobility, the M700. At the high-performance end, the 8-lb. E700 will feature ease in expandability for software designers and engineers (see chart). They're scheduled to ship in two weeks.

Compaq is consistently ranked in the top tier of vendors with the best-selling laptops, along with IBM, Toshiba Corp. and Dell Computer Corp.

Analyst Randy Giusto at International Data Corp. in Framingham, Mass., said the fact that the new models have common hard drives and CD-ROM drives should mean fewer headaches for IT managers when those parts need to be replaced. Moreover, common elements will lower Compaq's production costs, a savings that will be passed on to buyers, Giusto said.

Paul McAfee, a senior information analyst at GTE Internetworking Inc. in Cambridge, Mass., has been testing two M700s and said the new machines' ability to use existing docking stations "is very important."

GTE Internetworking automatically replaces all 3,000 of its laptops every 18 months as an attempt to lower lifetime ownership costs, McAfee said. The company plans to upgrade with all three new Compaq models, rolling out 300 per month.

Three New Compaq Armada Laptops

Name: M300
Price: Starts at $1,999
Features: 3 lb. (5 lb. with Mobile Expansion Unit); 11.3-in. screen; 333-MHz Pentium II or Celeron processor

Name: M700
Price: Starts at $3,299
Features: 4.8 lb.; 14.1-in. screen; 366- or 400-MHz Pentium II processor

Name: E700
Price: Starts at $4,799
Features: 8 lb.; 14.1-in. screen; 400-MHz Pentium II processor

WebSphere Version Designed to Link Back-End Systems

BY DAVID ORENSTEIN
LAS VEGAS

Users expressed cautious optimism at IBM's developer conference last week that the new enterprise version of IBM's WebSphere Java application server can make their gargantuan transaction processing tasks manageable.

WebSphere Enterprise Edition 3.0, which will be available in September for $35,000 per processor, plus $7,500 per seat for developers, is directed at large corporations with huge transaction volumes and a mess of older data systems on the back end. The lower-end versions of WebSphere, Advanced and Standard, focused more narrowly on new development in smaller environments.

The product's ability to generate code that will allow the server to handle and even undo transactions on back ends such as IBM's CICS and IMS and Oracle is crucial to beta user William Hahm, senior architect at Country Cos. in Bloomington, Ill. The insurer of more than 1 million cars and 500,000 lives has data on IMS, VSAM and OS/2 platforms and has struggled to manually integrate them.

"I wish you could see how we've worked — how many man-hours and how much money we have spent — trying to integrate together all our silo systems," he said.

Country Cos. is using WebSphere to prototype a Web-based rate quote generator for car insurance. The application calls on data about the customer's driving records, car history, personal history and credit, Hahm said.

But several users at the conference who didn't use the product in beta said providing such extensive interoperability seemed like a tall order that they would need to study more.

The South Bend, Ind., landing systems and aircraft engines unit of manufacturing giant AlliedSignal Inc. has been using IBM's MQSeries messaging middleware to integrate numerous back ends, team leader Thomas Philbin said. "What I would love would be to have an application server like WebSphere that could access the back end systems," he said. "[But] it's a fairly complicated product."

Analyst Thomas Dwyer at Aberdeen Group Inc. in Boston singled out WebSphere Enterprise Edition for praise in a report last week. "Based on IBM's historical strengths in solving transaction-processing problems for the very largest enterprises and most complex environments ... WebSphere ... will be an industry-leading implementation," Dwyer said.

Big Blue Software

At its Solutions 99 Conference in Las Vegas, IBM announced a smattering of new software that links disparate corporate systems:

SecureWay: Version 4 now has SSL and LDAP support

SmallTalk: Version 5 includes Web integration, Java interoperability and better support for popular servers

IBM Unveils Upgrade for E-Storefronts

Net.Commerce 3.2 features are better for managing sites

BY CAROL SLIWA

Gearing up for the holiday retail rush, IBM last week announced plans for an upgraded version of its Net.Commerce software, which helps companies build electronic storefronts.

Net.Commerce 3.2, due at the end of August, promises better performance and scalability thanks to dynamic page caching improvements, CPU utilization and database access efficiencies and more selective handling of encrypted data, said Karl Salnoske, IBM's general manager of e-commerce products.

The Victoria's Secret Web site, a Net.Commerce beta tester, is anticipating a performance boost of at least 50%, said Frank Giannantonio, a vice president at The Limited's technology services, which manages the site.

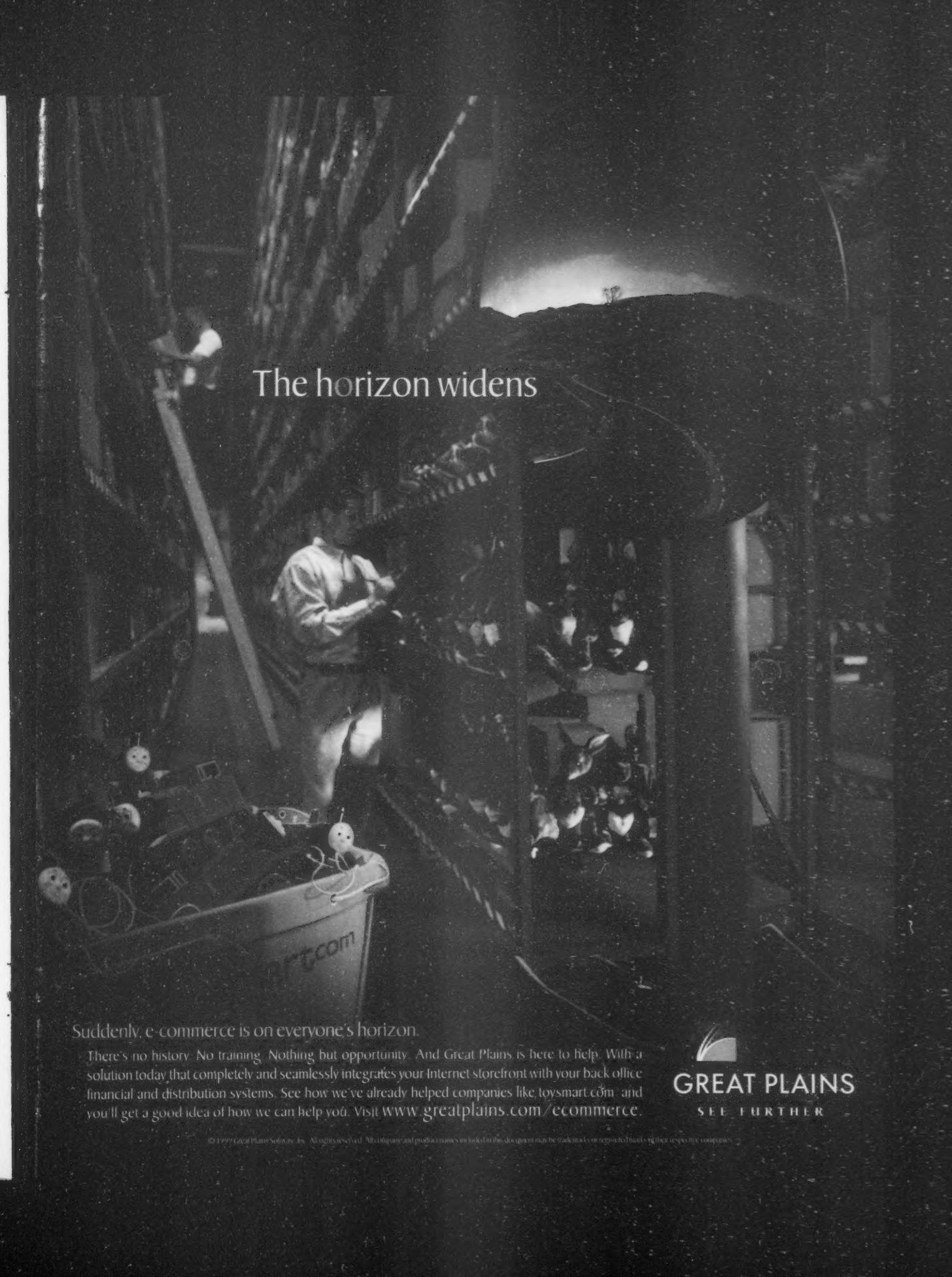
Companies that want to get the upgrade before August can start with Version 3.1; taking the additional step to 3.2 won't be difficult, Salnoske said.

In connection with the Net.Commerce 3.2 release, IBM also plans an upgraded Catalog Architect 3.2 tool featuring support for Extensible Markup Language (XML), to help companies create and manage their Web-site content.

XML tags will make it easier for companies to export and import catalog content and repurpose the information for multiple uses like print advertising or a CD-ROM catalogs.

Equally important will be IBM's partnerships with content-management companies such as Interwoven Inc. and OnDisplay Inc., said Yankee Group analyst Steve Robins.

IBM's Net.Commerce Start version costs $4,999. The Pro version, featuring Catalog Architect and more advanced functionality, costs $19,999.


The horizon widens
Suddenly, e-commerce is on everyone's horizon.
There's no history. No training. Nothing but opportunity. And Great Plains is here to help. With a solution today that completely and seamlessly integrates your Internet storefront with your back office financial and distribution systems. See how we've already helped companies like toysmart.com and you'll get a good idea of how we can help you. Visit www.greatplains.com/ecommerce.
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BRIEFS

Clinton Signs Y2K Law

Calling it "extraordinary and time-limited legislation," President Clinton last week signed the year 2000 liability-limiting bill into law. The new law sets a 90-day cooling-off period before litigation can commence, and applies only to Y2K failures that occur before Jan. 1, 2003.

Telcos OK in Y2K Test

AT&T Corp. and BellSouth Corp. said they have successfully tested their private business lines for year 2000 compliance. Airlines, university campuses, financial institutions and gas companies are among the businesses that use private lines.

BC Gas Adds Web Services

BC Gas Inc. in British Columbia has added Web-based customer information services for its 750,000 utility customers in western Canada. The $10 million project, which includes software from New Zealand-based Peace Software International, allows customers to access billing, utility usage and support information online.

Short Takes

EQUIFAX INC. and LYCOS INC. said they plan to launch a service to let users access their credit information over the Internet. The site will offer users their credit profile information and a monitoring service to alert them to activity in their credit profile. . . . PALM COMPUTING INC. has introduced an entry-level organizer, the Palm IIIe. It costs $229. . . . Children's apparel retailer GYMBOREE CORP. said it will relaunch its Web site this fall, tailoring it to specific age groups, demographics and geographies using BLUE MARTINI SOFTWARE's electronic-merchandising system. . . . LOTUS DEVELOPMENT CORP. has released the S/390 version of Domino R5. . . . MICROSOFT CORP. has released a beta of Service Pack 6 for Windows NT 4.0, available to technical beta sites. . . . PRICEWATERHOUSECOOPERS will supply the AUSTRALIA DEPARTMENT OF FINANCE with human resource processing services under a three-year agreement.

Utilities Y2K-Ready, Industry Group Says

One in five power suppliers still face tests; some contingency plans rely on telephone

BY STACY COLLETT

THE NORTH American Electric Reliability Council (NERC) is expected to report next month that almost all utility companies in the U.S. and Canada are ready for year 2000.

The report, to be presented Aug. 3 to the U.S. Department of Energy, "will show that more than 99% of electric companies are fully tested and remediated," said John Castagna, spokesman at the Edison Electric Institute, a Washington-based industry group that worked closely with NERC on the report.

Despite the report's rosy bottom line, there's still work to do: At least 20% of utility companies still have year 2000-compliance testing that can't be finished until their plants are shut down for routine maintenance later this year, said Gerry Cauley, NERC's Y2K program coordinator.

Companies with unfinished testing or other year 2000 work still will appear on a list of Y2K-ready utilities, Cauley said. "They went through thousands of items, but there's one, two or three things left. From a NERC perspective, they've done what we've asked them to do," he said.

All utility companies were asked by NERC, a Princeton, N.J.-based industry group, to submit contingency plans with their Y2K testing statuses by June 30; most of the 250 largest complied, Cauley said.

Castagna said two or three of the utilities that aren't year 2000-ready are so-called "bulk suppliers," which produce electricity for large regions of the country and sell it to smaller utilities. Those companies have identified the steps needed to reach full compliance, he said.

Domino Effect

The last-minute fixes have some industry watchers cautioning about potential weak links in the power grid. "The grids are interconnected. The real question isn't so much unit testing, but if one member of the grid screws up, what's going to happen to the others?" asked Chris Alvord, a utilities consultant at American Management Systems Inc. in Fairfax, Va.

Castagna and Cauley said there are no "black holes" in the power grid.

Atlanta-based Southern Co., a bulk energy supplier and parent firm to five Southeastern utility companies that serve 11 million customers, will rely heavily on telephones as part of its Y2K contingency plan if the computer systems fail at its Power Coordination Center in Birmingham, Ala.

"People at each plant will call in data and enter it manually," said Southern spokesman Mike Tyndall. If the phones don't work, it will have to rely on walkie-talkies, he said.

Utility Industry Year 2000 Dates

JUNE 30
All North American utilities were to submit Y2K status reports and contingency plans to NERC

AUG. 3
NERC will present a utilities industry Y2K-readiness report to the U.S. Department of Energy

SEPT. 8-9
NERC will hold a North America Y2K drill to rehearse, under simulated conditions, key portions of the utilities' contingency response plans

Logistics Software Vendors Try Per-Transaction Charges

Xerox unit among first to test service

BY CRAIG STEDMAN

Some vendors of global logistics software are putting a new twist on application hosting: charging users by the drink.

Instead of paying a set monthly or annual fee to access the logistics applications, which help manufacturers and retailers process product shipments to foreign countries, users who sign up for the new hosting services would be billed a small amount for each transaction they run.

New York-based Syntra Ltd. announced a pay-as-you-go hosting service this month, with charges of about $1 per transaction. NextLinx Corp. in Silver Spring, Md., plans to launch a similar offering later this year, though it will also offer more typical, subscription-based pricing.

The transaction-based approach could make it hard for companies to budget what they expect to spend to use the software, creating the potential for unpleasant billing surprises.

But the concept appeals to users such as Xerox Corp.'s document management services group.

JUST THE FACTS

Application Hosting

What it is: Software vendors or application service providers run applications and rent them to users, providing access via the Web or a wide-area network.

How widespread it is: Vendors are rushing to offer hosting services, but most users – especially large companies – are still in tire-kicking mode.

Pros and cons: Potential reductions in IT costs are the big draw. But issues such as performance and how to customize applications haven't been resolved.

The Xerox unit, which distributes training manuals, product documentation and other materials for more than 7,000 companies, is testing Syntra's software for use in an upcoming system that will let its clients order documents via the Web.

Screen Buyers

Foreign buyers have to be screened to make sure they can legally receive the materials. But letting Syntra host the application would free Xerox from having to load daily updates of government regulations, said Peter Serrao, chief technologist for off-site document management services at Stamford, Conn.-based Xerox.

Transaction-based fees map the way Xerox charges the companies it works for, making it easier to pass along the costs of using the Syntra software, Serrao said.

To protect against spiraling costs, Xerox's contract with Syntra provides that its fees will be renegotiated when transaction volumes reach a specified level, he added.

DHL Worldwide Express, which is evaluating global logistics software, is also interested in transaction-based hosting, said Michael Comstock, senior vice president of e-commerce and planning at the Redwood City, Calif., package-delivery company.

For small companies that don't make many overseas shipments, paying by the transaction could be a very cost-effective way to use the software, Comstock said.

Transaction-based pricing "is an ideal model" for those kinds of users, agreed John Fontanella, an analyst at AMR Research Inc. in Boston. But the vendors may have a hard time making that approach work financially, he added.

Global Technology Services Ltd. in Little Silver, N.J., is one vendor that tried and gave up. It launched a transaction-based hosting service in 1996 but switched to subscription fees last year after users asked for "one simple number that was fixed and could be put into a budget," said John Motley, the company's president.

As if your IT workload wasn't heavy enough, suddenly you're also expected to handle revenue issues. Locate new business opportunities. And find new revenue streams. If it hasn't happened already, it will. When e-services transform the Internet, opportunities will explode exponentially. Businesses will scramble for a piece of the action. And servers will make all the difference. Fortunately, you've got **the HP 3000 Business Server.** It has the proven reliability to handle the coming onslaught of information, 24 hours a day. It's compatible with the applications you'll need. And it's easily integrated into an e-services environment with UNIX® and Windows NT.® What more could you ask for? Oh yeah, a vacation. **www.hp.com/go/3000**

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GTE to Standardize On PC Docs Tools

Hopes to end version-control glitches

BY DOMINIQUE DECKMYN

IN AN EFFORT to harmonize multiple incompatible document management systems, GTE Corp. last week announced that it will standardize on Docs Open and CyberDocs software from Toronto-based PC Docs Group International Inc.

GTE, in Irving, Texas, said GTE employees who are on the PC Docs system will, by default, save all their documents, including Word and Excel documents, in the PC Docs repository rather than on local or shared hard drives. That will put an end to version-control problems caused by users routing documents to one another by e-mail. GTE wouldn't detail its rollout plans but said its information technology department is using Docs Open to solve version-control problems in software development projects.

The software is being installed in four GTE departments and is expected to reach 1,500 users before a year 2000 moratorium on new deployments takes effect in October. CyberDocs is server software that allows remote browser access.

The deal comes at a time when enterprises are hesitant to commit to major document management rollouts because of activity in the market, said Alan Weintraub, an analyst at Gartner Group Inc. in Stamford, Conn.

Lotus Development Corp. in Cambridge, Mass., now offers a relatively low-priced product called Domino.Doc, and Microsoft Corp. is expected to enter the market soon, Weintraub said. Domino.Doc costs $9,500 per server and $43 per desktop; Docs Open costs about $380,000 for 100 users.

Ginger DiFrancesco, systems consultant at GTE and project leader for the PC Docs implementation, said GTE has "many small pockets" of document management, including Lotus Notes databases and several systems, varying from just a few to several hundred users.

GTE declined to discuss what other products it considered or the value of the deal.

The two most widely used methods for sharing documents at GTE are shared directories and e-mailing copies of documents, according to DiFrancesco. ◗

Number Two

PC Docs is a close second to Documentum in the document management market

1998 WORLDWIDE SALES	
Documentum	$82.3M
PC Docs/Fulcrum	$76.23M
FileNet	$66.04M

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

NetWare Release Dates

Novell Inc. is getting ready to roll out new products and a series of beta tests this summer. Here's what's in store:

- The next release of NetWare, code-named **Cobra**, is due to go into closed beta before the end of this month
- Cobra is expected to go into open beta in **late summer**, but a final ship date hasn't been set
- New NetWare **clustering services** are slated to go into beta testing before the end of this month

CERT Warns of Buffer Overflow Unix Bug

Companies urged to use vendor patches

BY ANN HARRISON

The Computer Emergency Response Team (CERT) issued an advisory on July 16 warning of a buffer overflow vulnerability on Unix systems running the Calendar Manager Service daemon.

The exploit has affected dozens of Unix-based sites, said Kevin Houle, CERT team leader for incident response.

CERT advised companies using potentially vulnerable systems to install vendor patches that address the problem or devise work-arounds.

CERT reported that the bug allows remote and local users to execute arbitrary code with the privileges of the daemon, which is often named rpc.cmsd in systems directories. Access typically includes root privileges. The rpc.cmsd daemon is frequently distributed with the Common Desktop Environment (CDE), a Unix graphical user interface specification, and OpenWindows. A daemon program runs continuously and forwards requests to other programs.

Houle said affected sites reported that intruders have used the vulnerability to install tools that provide backdoors into systems for future access or tools used to attack other systems or to insert network sniffers that snare passwords.

CERT, which is based at Carnegie Mellon University in Pittsburgh and funded by government and private sources, said software systems potentially affected by this bug include the following:

- Products developed by Hewlett-Packard Co. using the CDE. Patches are being developed, according to CERT.
- SCO UnixWare 7, developed by The Santa Cruz Operation Inc. (SCO) in Santa Cruz, Calif. CERT said SCO is providing information and patches at *www.sco.com/security*.
- Patches for OpenWindows running on several SunOS versions developed by Sun Microsystems Inc. and CDE versions are available at *http://sunsolve.sun.com*. ◗

Vehicle-Fleet Wireless Server

BY MATT HAMBLEN

Computer Associates International Inc. and CellPort Labs Inc. plan to announce today a server running CA Unicenter software to be used for wireless vehicle-fleet management.

The unit will allow fleet managers to monitor variables such as the car's location and oil pressure over a wireless network, officials at the two companies said.

The wireless in-car unit, called the CP2100, will be beta-tested with several U.S. rental car and leasing companies later this summer, said J. P. Corriveau, senior vice president of advanced technology at CA.

The unit, which is about the size of a hardcover book, connects to the car's own internal sensors but also has an interface that would give a driver using a laptop e-mail and Web access, said officials at CellPort in Boulder, Colo. ◗

Continued from page 1

Novell

before [Windows 2000 ships]," said Brian Faustyn, Novell's director of product marketing for NetWare. "You'll see us pick up releases heavily in late summer and September and go from there."

"It's sounding really good for us," said Matt Rice, a senior network manager at Cambridge, Mass.-based U.S. Trust Corp., a $6 billion bank with 87 branches. "Microsoft might tell us they are delivering something, and who knows if they will? Novell has been delivering. I'd like to see what they're coming out with."

Cobra Strikes

Faustyn said Novell will start a limited beta test of the next release of NetWare, code-named Cobra, by the end of the month. NetWare's first foray beyond file and print will be able to handle Web applications.

The new version, which probably will be a dot upgrade to the current NetWare 5.0, features support for the Web protocol HTTP and for Oracle Corp.'s Oracle8i database, as well as front page extensions.

Users are eager to expand NetWare's uses but generally said they won't be dropping Windows NT for a new application server, simply because a good percentage of applications are written for Windows.

"There's not too many vendors out there, except Oracle, writing applications for NetWare," said James Whitaker, architecture and design engineer at Nextel Corp. in Atlanta. "A great server isn't so great without applications."

Next on Novell's list is a multiprocessing version of NetWare optimized on eight-way boxes. The upcoming version, code-named Six Pack, doesn't have a beta or a ship date yet.

Both new versions of NetWare are positioned to help Novell's operating system go head-to-head with NT, which doesn't offer NetWare's stability or scalability but does have more applications written for it. And with the still-to-be-released Windows 2000 promising greater multiprocessing capabilities, Novell is eager to stay ahead of that game.

Also before the end of this month, Faustyn said Novell will be going into the third beta with its new network clustering services. He declined to specify a summer ship date or reveal the other announcements and shipments that will be coming before the fall. ◗

MORE THIS ISSUE

Users say NetWare 5.0 is a big step toward easier management of IT infrastructure, **see page 58.**

Introducing CYA* for Y2K

According to the Chairman of the U.S. Senate Year 2000 Committee, "It doesn't matter if every computer in the country is Y2K-compliant if you can't plug it into something." That something is clean, reliable power.

Servers, PCs and the equipment that ties them all together are exposed to the risks of Y2K outages. In fact, a recent survey found network installations without UPS protection on their internetworking equipment experienced 50 percent more downtime.

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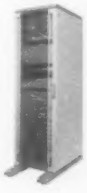

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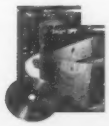

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"I mean, I'm a CNE. Leaving NetWare was a nervous experience for me. But now, every server we have is running on Windows NT. And it's exceeded my expectations, especially with file and print, which is critical to us as a law firm. Our print server is handling 30 million pages a year, and we never have to touch it. So I'd say it's been wildly successful."

Eric Schmidt, Director of Information Services, Bricker & Eckler LLP on switching to Microsoft® Windows NT® Server 4.0 from Novell NetWare

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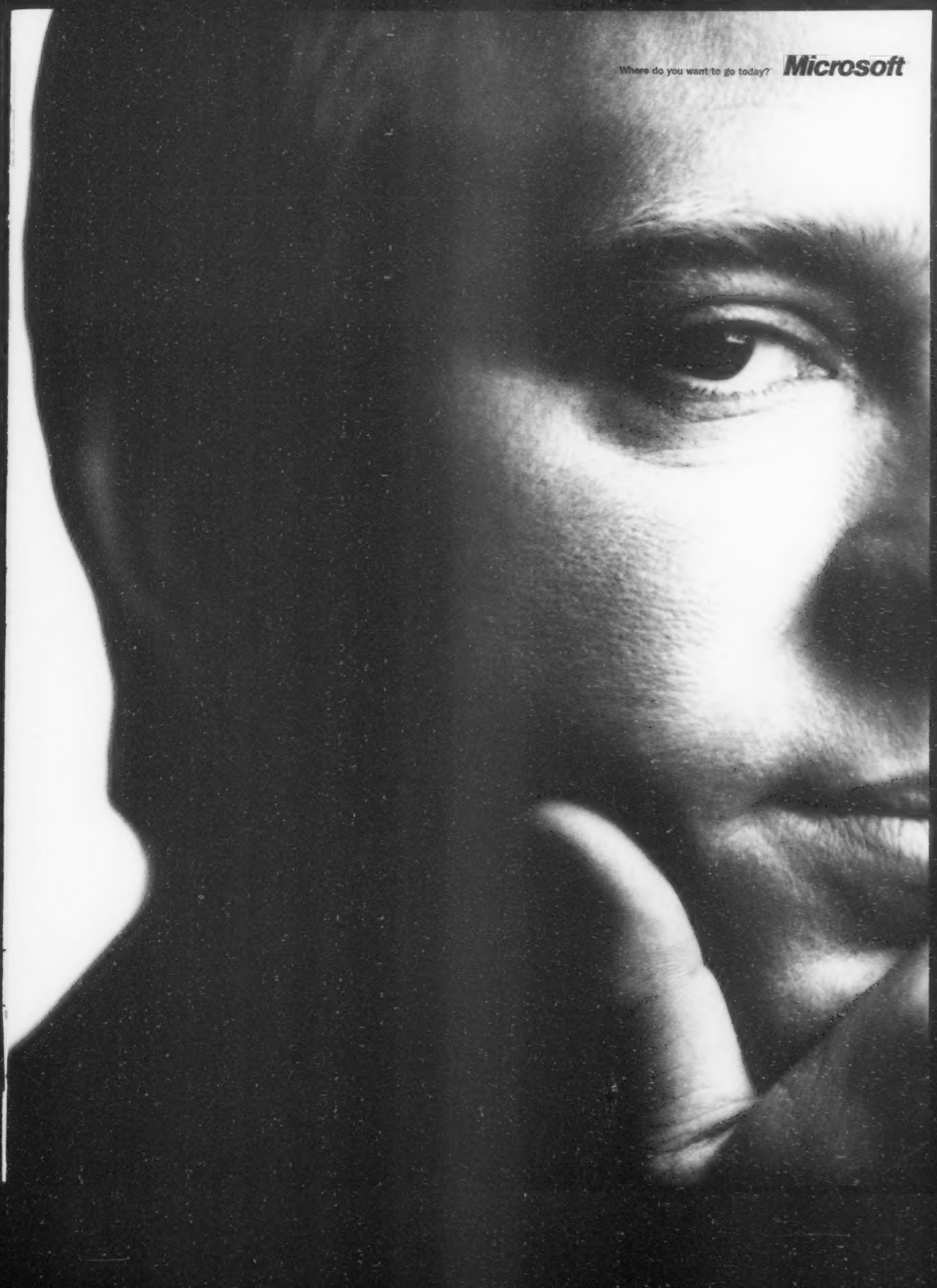
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Reebok Steps Up Use Of SAP Apparel Apps

Key early user of R/3 version cites improvements since the spring

BY CRAIG STEDMAN

REEBOK International Ltd. is starting to expand its use of SAP AG software for apparel and footwear makers after performance problems that limited its ability to process orders were eased.

But Reebok expects to push back to April a rollout of the SAP applications at its North American sneaker business, said Peter Burrows, chief technology officer at the Stoughton, Mass., company.

That piece of the SAP project was targeted for completion as a year 2000 fix at the North American operations. But Burrows said it looks to be too tight a squeeze to do the installation before the holidays.

Reebok is one of the key early users of the Apparel and Footwear Solution (AFS), an industry-specific version of SAP's R/3 applications. AFS has been plagued by start-up problems that prompted at least three users to shelve projects and drove SAP to devote more developers to the software [News, July 12].

Since SAP began paying more attention to AFS in the spring, Burrows said, Reebok has seen big leaps in the software's ability to check inventories as orders are placed.

A small number of transactions that took more than a minute to run before are now done in less than five seconds, Burrows said. Reebok's goal is under two seconds, but the current speed "is well within the acceptable range," he said.

AFS was already used to run Reebok's golf shoe division and some international operations. This month, the company's European apparel business and part of its French subsidiary went live. Its Japanese subsidiary is scheduled to turn on the software next week.

In the domestic sneaker business, though, Reebok will have to finish a year 2000 fix on its mainframe applications. Burrows said the order processing system was modified as a contingency, leaving fewer than a million lines of code to go over in secondary systems, such as one that helps analyze defects in returned products.

Bally Management Ltd., a Switzerland-based shoemaker, went live with AFS across Europe earlier this year. It plans to install AFS in the Far East in the next couple months and start work in the U.S. next year.

But it's using only about 25% of the functionality in AFS, said Harold Goldberg, director of information technology at Bally USA Inc. in New Rochelle, N.Y. "We didn't go after everything the system can do."

SEC Report Has Cob-Webs

Y2K Web report not up to date

BY THOMAS HOFFMAN

Last Monday, the Securities and Exchange Commission posted what was to have been an updated report on the year 2000 readiness of Wall Street firms and public companies on its Web site (*www.sec.gov*). In the report were disconcerting figures: Only 18 of the SEC's top 52 systems had been fixed.

Actually, the figures aren't up-to-date and are based on the SEC's Y2K readiness as of May. The reason for the delay: The SEC needed congressional approval to post the report, an SEC spokesman said. The SEC has repaired 44 of its top 52 systems. All systems are to be repaired and tested by Aug. 31.

The SEC's Y2K readiness is behind most broker/dealers it monitors. As such, it "loses a certain level of respect [as a governing body] by not following their own guidelines," said Kazim Isfahani, an analyst at Giga Information Group Inc. in Cambridge, Mass.

The SEC claims its most important system was fixed and independently tested in June. The EDGAR database, which was upgraded in May, lets investors check the 10-K and other financial reports filed by public companies.

International banks should be so well off. Though most U.S. brokerages appear to have finished the bulk of year 2000 work, only 22% of foreign investment banks, clearinghouses and stock exchanges are done. That's according to a study by the Securities Industry Assocation and the International Operations Association cited in the SEC's report.

Only 78 of 650 brokerages and stock exchanges targeted for the survey participated, but the majority have completed less than half their year 2000 projects. The survey was conducted between February and May.

Y2K Work Ending Won't Ease Labor Needs

Study: Need for IT workers to climb

BY BARB COLE-GOMOLSKI

Demand for information technology professionals — especially in corporate IT departments — will remain strong even after year 2000 work wraps up and Y2K coders enter the labor market, according to recruiters and IT managers.

In fact, a report published by the U.S. Department of Commerce earlier this month estimated that 1.6 million new IT workers will be needed between now and 2006.

"I don't think there's going to be any flood of talent in the market [after Y2K]," said Margaret Bouline, vice president of IT at Aviall Inc., an airplane parts distributor in Dallas. "There is such an overwhelming shortage [of IT workers]."

One reason is workers finishing year 2000 projects aren't likely to have skills that are most in demand today, like Web development, she said.

Lynn Dressel, a human resources manager at Carlson Cos., a $22 billion travel firm in Minneapolis, agreed. Most of the company's year 2000 staff are contractors, so she said she doesn't expect an abundance of Carlson IT employees looking for things to do.

Actually, "once we finish Y2K, we'll start firing up a lot of initiatives that were on the back burner," Dressel said. The company is also building a surplus of IT workers in the hope of relying less on outsourcers.

The conclusion of Y2K work may affect the consulting area, observers said. Still, many consulting firms have started to divert people off year 2000 projects to avoid big drops in earnings when work is done.

Bouline questioned how available Y2K consultants would be. "I think most companies will need the consultants to stay on [long past the millennium] because their systems will be unstable," she said.

Year 2000 Hangover

Companies aren't expecting the completion of year 2000 projects to ease their labor woes because:

- Many year 2000 projects are done by consultants
- Cobol coders may not know hotter technologies, such as Web tools
- Year 2000 projects will continue to demand a lot of IT attention long after the date change

E-Stores Spend 15% of Sales on Web Sites

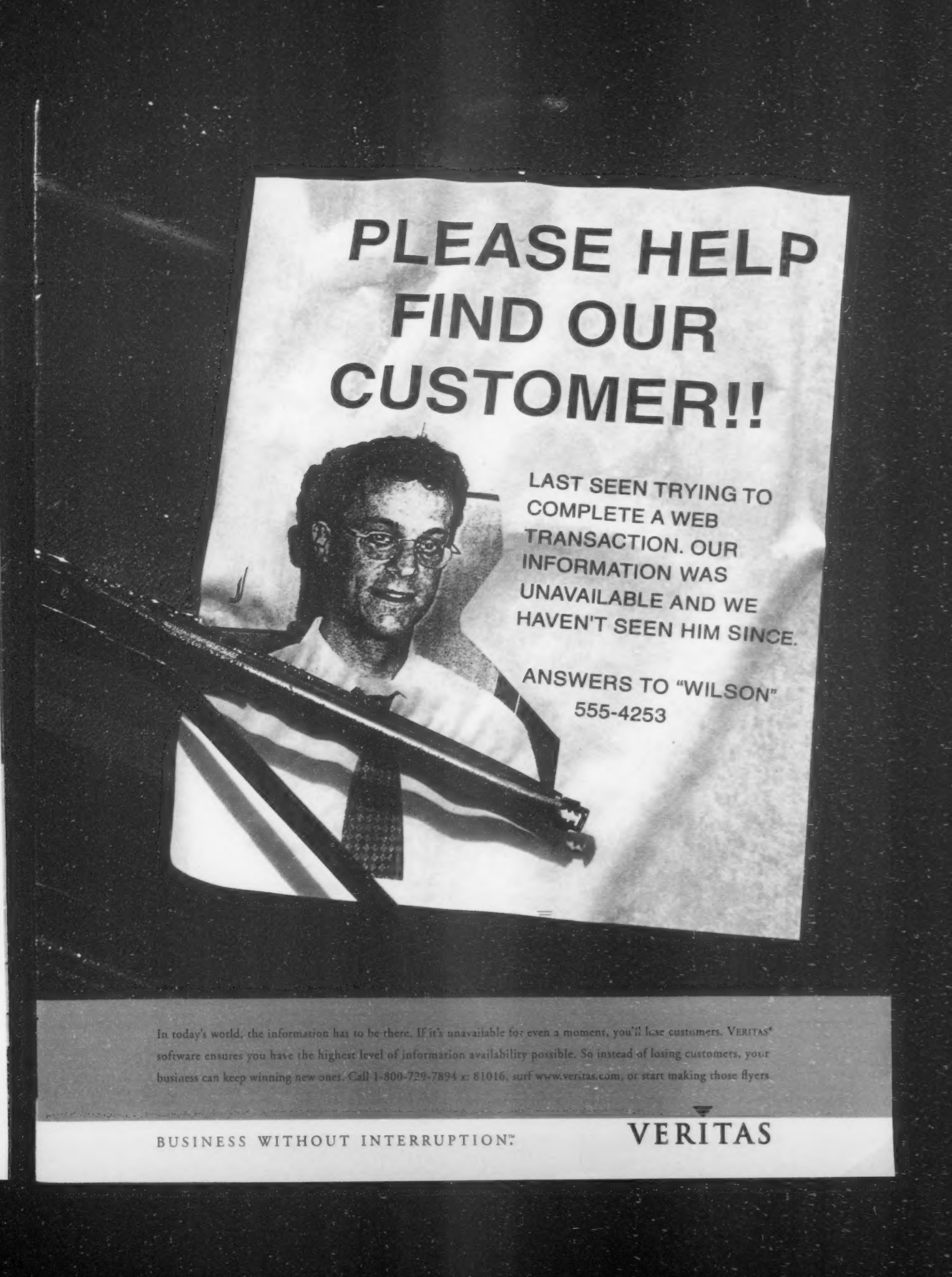
BY DAVID ORENSTEIN

Retailers selling online have allocated an average of 15% of their revenue to develop and maintain their Web sites, according to a report last week by Shop.org and The Boston Consulting Group Inc. (BCG).

Information technology spending matched what traditional retailers with strong brands spend on marketing but was dwarfed by the amount online-only retailers use for marketing, the survey of 158 retail sites found. But marketing may need to command more of the budget of traditional retailers, said Donna Iucolano, chairwoman of Shop.org's research committee and a vice president at retailer 1-800 Flowers Inc. in Westbury, N.Y. Traditional retailers may underestimate the need to push their sites and brands online.

In general, marketing efforts to acquire new customers appear to be paying off. Web sales rose to an estimated $14.9 billion last year, a 190% increase over 1997. Shop.org, a trade group of online retailers, and BCG projected that number will rise 140% this year, to $36 billion, based on sales in the first three months. Traditional retailers are winning the majority, 62%, of sales.

The survey found both online-only and traditional retailers are turning to outsourcers. Online-only retailers outsourced inventory and warehousing of goods 57% of the time, for example, and 52% of traditional retailers outsource Web-site development.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Point of View

Windows NT

Clustering time: Just when is it?

By Dan Kusnetzky
International Data Corp.

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Clustering for **application availability** virtualizes one or more applications. With this type of clustering, which is built on clustering for data availability, even if your Microsoft Exchange server became unavailable, your e-mail services would continue to function.

In **clustering for performance,** the point is to improve the computational performance of an application. The application is designed to run separate processes in parallel on separate systems. An example of this is media content creation.

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Better answers

ROI analysis for migrations to Windows

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ROI can be expressed mathematically as the ratio return/investment. An ROI over 1.0 indicates that the investment will save your organization more money than you're spending. An ROI under 1.0 could indicate potential savings of $1 million, but it will cost you $1.5 million to do so.

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If the only interaction your company has with the customer is through a Web interface, you can build customer loyalty by leveraging four areas: e-sales, e-service, e-support and e-measurement.

E-sales allows you to determine your customer's buying needs, develop purchase alternatives, and propose the optional solution online. E-sales can help you target particular products and services to individual customers. It also allows the customer to more easily find and purchase the products and services of most interest to them.

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IT organizations pick Microsoft Cluster Server

Source: IDC Windows Adoption Study, Feb. 1999

Produced by: COMPUTERWORLD ENTERPRISE BUSINESS SOLUTIONS

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Point of View

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- Lowest cost of administration is a key goal.

Dan Kusnetzky is the program director for IDC's Operating Environments Service.

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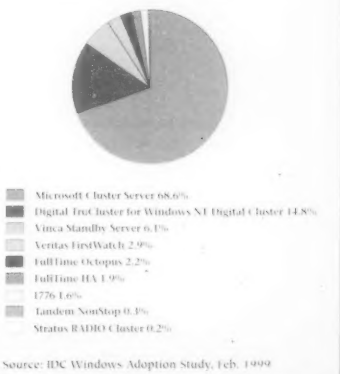

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- Must run faster than is possible on any single system and be able to be designed to run in parallel;
- Must support more users than can be supported on any single system and require a shared database;
- Lowest cost of administration is a key goal.

Dan Kusnetzky is the program director for IDC's Operating Environments Service.

Microsoft®

Critics: Vendor Diplomas Still Too Easy to Acquire

IT TRAINING: *Recruiters say certification tests measure book smarts, but graduates lack hands-on technical experience*

BY BARB COLE-GOMOLSKI AND KIM S. NASH

LARRY DAVIS, 24, studied political science in college, but he's well on his way to becoming a Microsoft Certified Systems Engineer (MCSE). With little hands-on experience with the products, Davis — who forked over $5,000 for a two-week "boot camp" — passed four of the six required tests.

"Just about anyone can pass if they have a home computer and are a quick study," said Davis, who used his credentials to land a PC/LAN support position at a major computer maker.

Hiring managers in the labor-strapped information technology field welcome career-changers and newcomers such as Davis. But they're also increasingly skeptical about vendor-run software certification programs, which are churning out certified professionals at fever pitch.

Not Ready for Prime Time

"I've seen a number of people come out of vendor certification programs who don't really know their stuff," said Vic Janulaitis, CEO of Positive Support Review Inc., a management consulting and technical recruiting firm in Santa Monica, Calif.

One individual, who held a certificate from a leading database provider, couldn't import a flat file, Janulaitis said.

"Another person was certified as a Web programmer and wanted a salary of $90,000," Janulaitis recalled, "but he only knew one [development] tool."

Just about all the major players sponsor certification programs. Among them are Microsoft Corp., Novell Inc., Cisco Systems Inc., Lotus Development Corp. and Oracle Corp.

In the early 1990s, Novell's Certified NetWare Engineer (CNE) diploma was so devalued that Novell had to toughen up the program in April 1995 to regain some respect.

But critics say IT certifications are still too easy to get. Indeed, a few minutes on the Web unearths a plethora of boot camps, books and other study aids designed to prepare students for exams.

"Become an MCSE in just two weeks!" says one come-on. And the NT School in Fort Lauderdale, Fla., pledges that students will get an MCSE after attending its two-week boot camp; if not, they can attend another boot camp for free.

Then there are the so-called "brain dumps": Web sites where people who have already taken the exams describe what you need to know to pass the tests.

"I took the CPA exam many years ago, but that doesn't mean that today I would be able to go off and be an accountant," said Terri Kemmerer, manager of worldwide IT human resources at Cargill Inc. in Minnetonka, Minn. Kemmerer said she's interested in "knowledge applied, not knowledge acquired."

Some recruiters said the certification industry is pumping out more graduates than they can handle. There are currently more than 500,000 Microsoft-certified professionals, including about 142,000 MCSEs.

A. J. Tavares, a recruiter at RHI Consulting Inc. in Irvine, Calif., said he's inundated with résumés from folks he calls "paper MCSEs" and "paper CNEs" — applicants who are certified but don't have job experience.

"It used to be that people who got certified had worked with the products," Tavares said. "But now I see résumés from bricklayers and auto mechanics who have gone to tech schools and are going after certifications."

Critics said vendor-specific certification focuses on implementing features of the vendor's products — information that can be memorized.

Thinking Skills

"It's cookbooking," said Ian Hayes, president of Clarity Consulting Inc. in Hamilton, Mass. He said what's missing are the critical thinking skills needed to make the products work in a business setting.

Although some certification holders claim that those credentials have become a requirement today, there's a continuing debate about the value of the certificates. Some hiring managers said they are the ticket to getting an interview, but others said they aren't required.

Certificates don't matter much if the job candidate doesn't have real-world experience, said Ryland Harrelson, vice president of human resources for IT at Total Systems Services Inc., a credit-card processor in Columbus, Ga.

He said he has encountered people whose résumés list several certificates, "but if they don't speak to how they benefited the business, then we're not interested."

Michele Krebs, an information systems recruiter at Rite Aid Corp. in Harrisburg, Pa., noted that certified professionals have "a somewhat inflated view as to what kinds of salaries they will get."

Without experience, Krebs said, she views certified professionals merely as entry-level workers.

Defenders said vendor certifications get a bad rap because they tend to get lumped into a single category, yet there are actually varying degrees of difficulty.

For instance, Microsoft has the Microsoft Certified Professional diploma, which is much easier to attain than the MCSE.

Cisco's certification programs for internetworking were singled out by many as more meaningful than most similar diplomas because of the hands-on nature of the tests.

Defenders also dispute the notion that people can cram their way into a certification. "You just can't pick up a book and study over the weekend," said Jim Cogliano, chief operating officer at Sullivan & Cogliano, an IT staffing firm in Waltham, Mass.

AnneMarie McSweeney, certification development program manager at Microsoft, said her company constantly works to make the certification test better reflect the real world.

"People who have the job in the real world write the tests," she said. Plus, the company has added simulation and, in the case of the Microsoft Certified System Developer, case studies to the tests.

Exam Secrets

The latest Microsoft effort to protect the value of its certifications is to make it harder for people to find out about exam contents.

Since February, it has required test-takers to sign nondisclosure agreements. And it's now using "adaptive testing," in which the way you answer questions determines which questions you get next.

Though hiring managers continue to debate the value of vendor certifications, the applicants themselves see the high-tech acronyms as a way to get noticed.

"Experience is better [than certification] alone, but I used it to get my foot in the door," said Davis, the boot-camp graduate. "If I hadn't had that certification, they wouldn't have looked at my résumé."

'Hybrid' Training Option Takes Root

Vendor-specific certification is getting some competition.

Doug Upchurch, executive director of the Information Technology Training Association in Austin, Texas, said a new trend is toward hybrid certificates that combine vendor-specific programs with independently run ones.

HyCurve Inc. in San Francisco, for example, offers an Internet Professional program, where students take a course in a particular vendor's product, such as Adobe Systems Inc.'s PageMill, a Web-site development tool. Then they complete HyCurve's program in principles of Web design.

"It's a very powerful combination, more valuable in the marketplace than a vendor-particular certification," Upchurch said.

James Bensman, CEO of GeoTrain Corp., a Cisco training partner in San Mateo, Calif., said more and more companies are becoming interested in customized corporate training for IT professionals.

Today, a lot of time spent in vendor-specific training classes is on material that workers will never use, Bensman said.

"The better approach is to have a training company come in, do an analysis of the environment and put together custom programs," he said.

Doing so could cut costs by a third to a half, according to Bensman, because the training is tailored to what the company really needs.

– Barb Cole-Gomolski and Kim S. Nash

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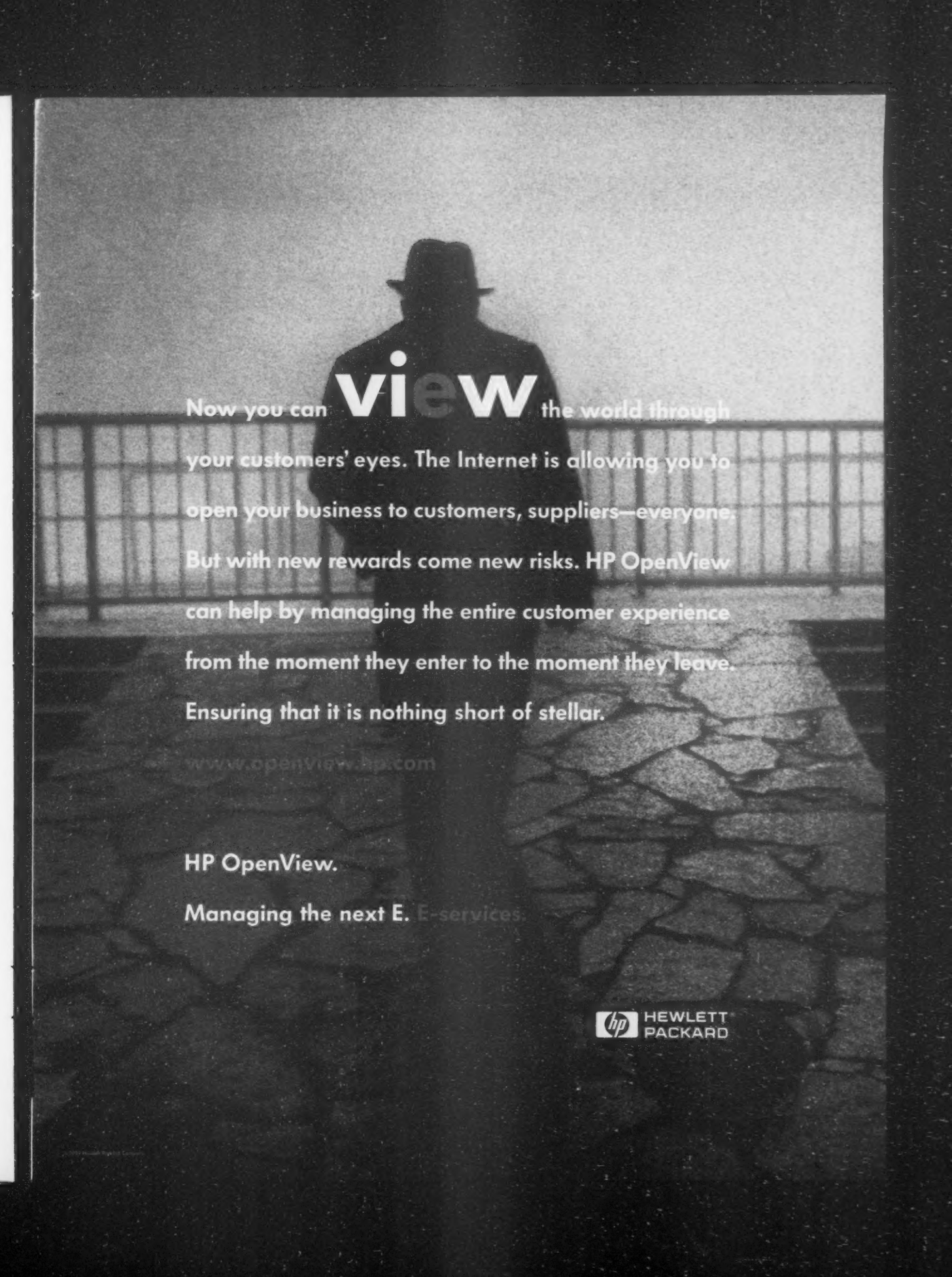
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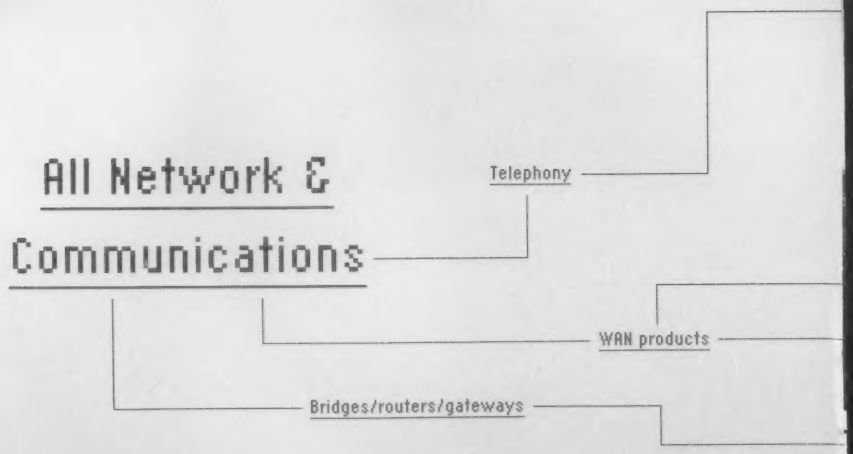

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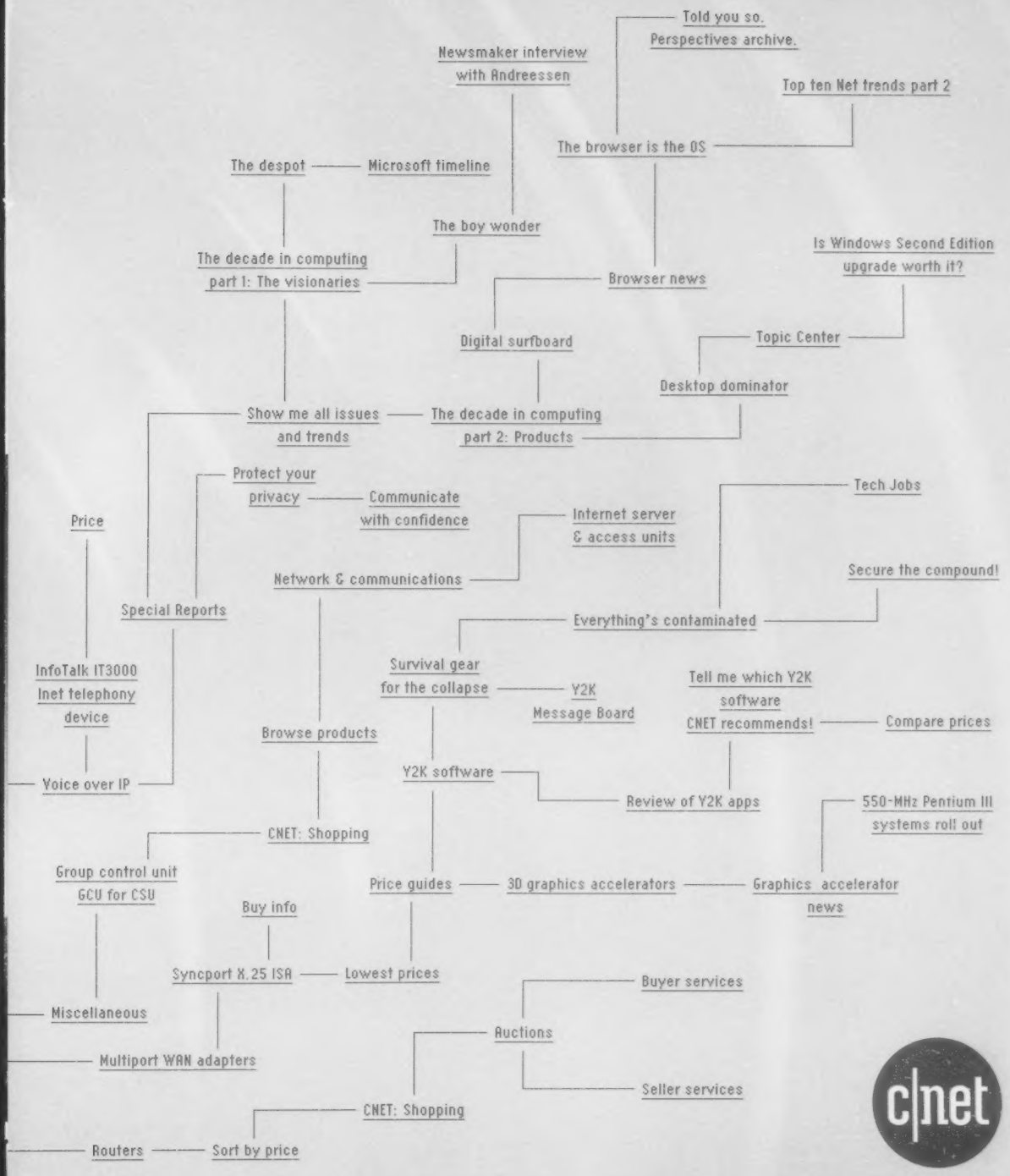
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Pentagon Progresses on Y2K Fixes, But Still Has Far to Go

BY PATRICK THIBODEAU
WASHINGTON

The U.S. Department of Defense (DOD) is last among large federal agencies in completing its year 2000 repairs, according to a Y2K watchdog.

Also, its end-to-end testing may not be finished until November, and it has yet to secure Russia's cooperation in a project to safeguard against the Y2K glitch to end all glitches: the accidental launch of a nuclear missile.

The DOD's year 2000 effort earned a "C-" grade from congressional Y2K watchdog Rep. Stephen Horn (R-Calif.), who placed it last among large government agencies. The White House's Office of Management and Budget reported last month that 87% of DOD systems had been repaired, the lowest percentage among large agencies. The DOD said it has now reached 92% compliance.

Despite those assessments, John Koskinen, chairman of the President's Council on Year 2000 Conversion, said the Pentagon is making "great progress" — especially after the successful, end-to-end test of its massive logistics system earlier this month. The DOD uses the system to handle $80 billion in annual supply purchases for the military.

But observers said more work is needed. "I think there has to be a lot more effort and time put toward contingency plans and contingency management," said Zachary Zelden, research director at Business Executives for National Security, a Washington-based, nonpartisan advisory group.

The DOD hasn't finished contingency planning for its 5,000-plus suppliers of products; supply-chain contingencies should be completed in the next two months, said Zachary Goldstein, director of logistics systems modernization.

End-to-end testing of other systems, such as personnel and communications, is ongoing, the DOD said. But the General Accounting Office warned recently that the DOD "cannot afford major slippages," because its Y2K schedule is so tight.

Waiting on Russia

U.S. officials have also yet to secure Russia's participation in the DOD's recently completed early warning center in Colorado — a system designed to prevent accidental missile launches, especially from Russia's deteriorating defense systems. Talks broke down earlier this year as a result of the Kosovo crisis, but top U.S. and Russian officials were expected to meet later this month, a congressional source said.

The odds of an accidental missile launch are unknown, but that "has got to be worst conceivable thing that could go wrong with Y2K," said Bill Pike, a defense analyst at the American Federation of Scientists in Washington.

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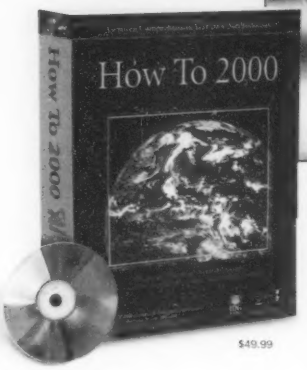

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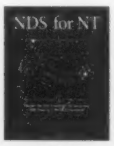

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In First, Hewlett-Packard Picks Outsider as CEO

Ex-Lucent executive Fiorina expected to bring experience in networking, services

BY JAIKUMAR VIJAYAN

CARLETON FIORINA, the new CEO of Hewlett-Packard Co., could add some fresh perspectives to HP's strategies at a time when the company is finally showing signs of emerging from a two-year slowdown, observers said.

HP was split in two in March. Fiorina heads the computer and printer company, which retains the HP name. The other, as-yet-unnamed company is focused on medical equipment.

Pioneer of Sorts

Fiorina's unexpected appointment last week as president and CEO of the $40 billion corporate supplier marks the first time HP has installed an outsider, and a woman, in the top post. Fiorina, 44, is the former head of Lucent Technologies Inc.'s $20 billion global-services provider.

The announcement ended a five-month search to find a replacement for former CEO Lewis Platt, who announced his retirement in March but said he would stay until a successor was found. Platt, who is HP's chairman, is expected to step down by the end of the year.

CARLETON FIORINA brings a lot of knowledge in telecom, networking and services

The move belied expectations that HP would promote Ann Livermore, the head of HP's enterprise computing division, to the post. "I was very surprised by the move. . . . I hope HP is going to be able to retain Ann after this," said Thomas Kucharvy, president of Summit Strategies Inc., a Boston consultancy. Analysts have credited Livermore with developing an aggressive Internet services strategy that has generated much of the company's recent momentum.

In addition to Livermore, other HP insiders who were considered to be in the running included enterprise marketing chief Nick Earle and Bill Russell, head of HP's enterprise software group.

Rallying such executives behind Fiorina and building support for her leadership is going to be a crucial early challenge, said Joyce Becknell, an analyst at Aberdeen Group Inc. in Boston.

Fiorina — who has been rated among the most powerful women in corporate America by *Fortune* magazine — spent 20 years at AT&T Corp. before taking the Lucent job. She's credited by analysts with spearheading the spin-off and successful initial public offering of Lucent from AT&T in 1996 and of growing the company's service-provider business in international markets.

"I think what she really brings to HP is a lot of knowledge in the telecom, networking and services space," Becknell said.

Electronic Strategy

That experience is considered critical for HP's electronic-services strategy to succeed. Under the plan, HP — still considered by many as mainly a box vendor — is trying to position itself as a one-stop shop for electronic-business applications, selling everything from Unix servers and e-commerce application software to hosted services, as well as network management and integration services. That kind of positioning will require tighter integration among HP's traditional hardware business and its systems integration and network services groups.

Fiorina steps in at a time when HP's fortunes are beginning to look up again following a two-year slump triggered by sluggish server sales, the Asian financial crisis, PC price wars, increased competition in the printer business and its failure to establish an Internet presence. Though HP remained profitable through that period, its growth rate slowed to a crawl, resulting in job cuts and office closings last year.

The past two quarters saw HP record double-digit growth again. The company claimed better-than-expected sales across most of its products as its stock price hit an all-time high of $115 last week.

Analysts said much of that comes from the more-focused corporate message HP has been able to deliver following its split into two units.

Analysts added that HP's new Internet strategy — under which it has begun teaming with scores of large and small partners to deliver a wide range of products and services — is beginning to get noticed by customers.

Microsoft's Fiscal Earnings Top Expectations

But year 2000 issues may hurt next year's profits

BY SHARON GAUDIN

Microsoft Corp.'s fiscal 1999 earnings topped Wall Street expectations, but opinions vary on whether year 2000-related system freezes will send those numbers into a slump in the coming year.

The software vendor's profits for the year were up 69% from fiscal 1998 to $7.79 billion on revenue of $19.75 billion. Profits for the quarter were up 60% over the same period last year (see chart).

"Microsoft is looking good," said Bill Peterson, an analyst at International Data Corp. in Framingham, Mass. "Office 2000 sold well. Windows NT Workstation sold well. But a lot of the companies I talk to will be locking down Nov. 1 to steel themselves for Y2K. That's got to hurt Microsoft."

Sounding a Warning

Greg Maffei, Microsoft's chief financial officer, said "uncertainties surrounding" year 2000 and a slowing demand for PCs could result in less revenue growth next year. He also noted that Office 2000 and NT Workstation sales helped boost 1999 figures. But industry observers point out that Microsoft has historically tried to dampen its financial expectations.

Michael LeConey, a technical analyst at Security Capital Trading Corp. in New York, said companies locking down for year 2000 may not affect Microsoft as heavily as other industry vendors.

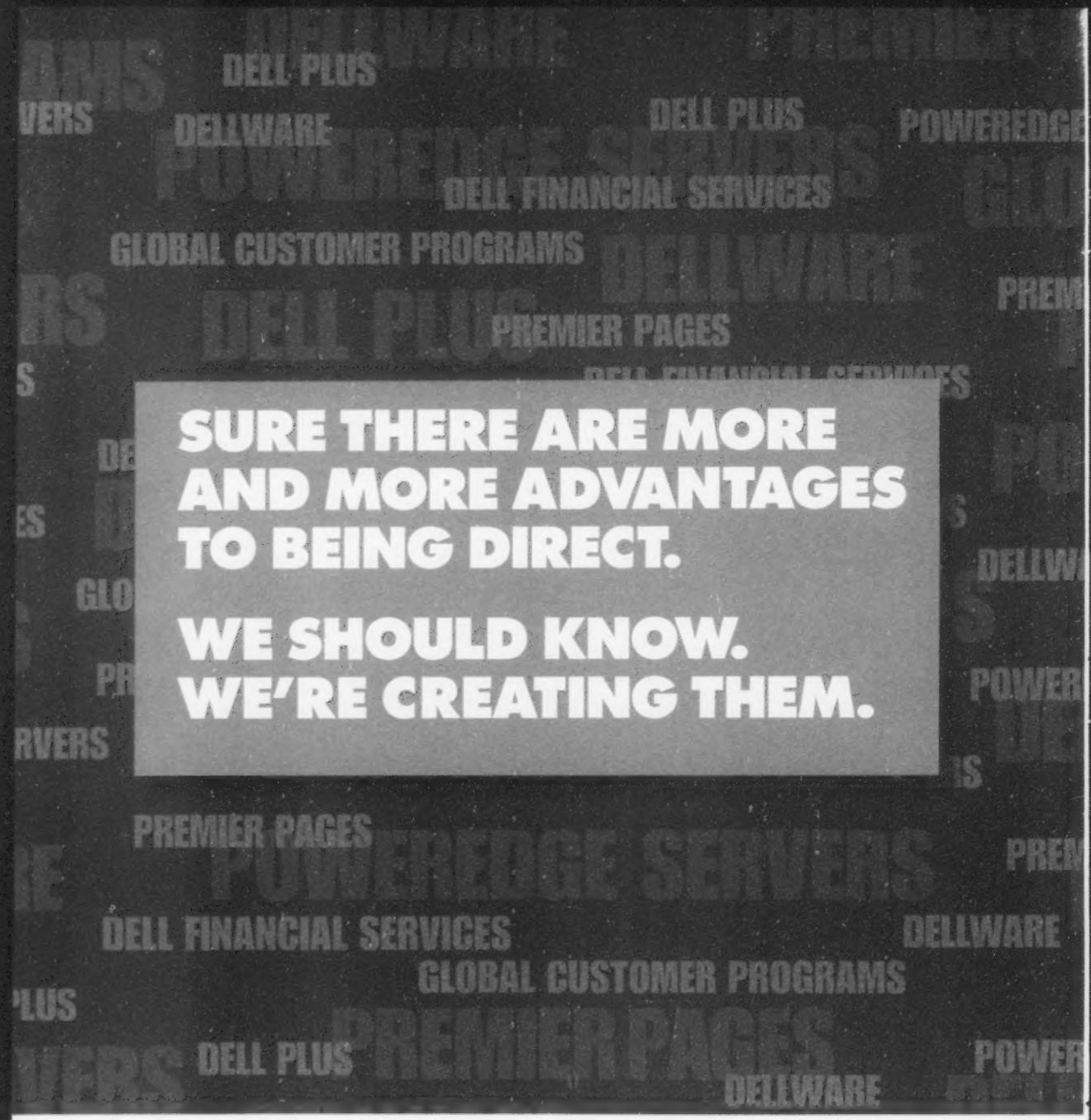
"Microsoft still deals with small networks [and] PC-based products," said LeConey, who tracks Microsoft. "They're working on [becoming a corporate player], but we're still not talking about heavy-duty, nationwide enterprises based on NT. . . . If Y2K affects them, it won't be much."

Peterson said Windows 2000 sales will eventually boost Microsoft's overall sales but cautioned that that bump might not arrive until mid-2000. He said Windows 2000 — which is expected to ship in the fall — probably won't win wide acceptance until six to 18 months after its release.

SNAPSHOT

Quarterly Earnings Roundup

COMPANY	Q2 REVENUE*		Q2 NET INCOME*	
* Refers to calendar second quarter	1998	1999	1998	1999
America Online	$943M	$1.38B	$58M	$156M
Citrix Systems	$56.2M	$94.4M	$17.4M	$30.2M
EMC	$952M	$1.29B	$189.5M	$288.9M
IBM	$18.8B	$21.9B	$1.5B	$2.4B
Lucent Technologies	$6.2B	$8.2B	$186M	$457M
Microsoft	$4.15B	$5.76B	$1.36B	$2.2B
PeopleSoft	$320.5M	$312.2M	$39.2M	$3M
SAP	$1.16B	$1.32B	$159.1M	$148.6M
Silicon Graphics	$773.6M	$828.6M	($220M)	$157.8M
Sun Microsystems	$2.88B	$3.52B	$395M	$288M
Sybase	$217.9M	$210.2M	$450,000	$14.3M
Symantec	$153.1M	$175.1M	$24M	$23.7M



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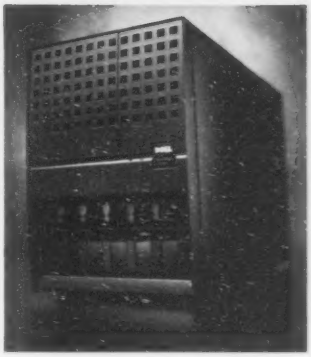

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MARYFRAN JOHNSON

ERP trauma ward

THE ERP LANDSCAPE, once a dance party of double-digit profit growth, is littered with the walking wounded. What a painful spectacle to watch, this market freefall of the enterprise resource planning vendors. From the giddy heights of 1997-98 to last week's story [CW Online, July 20] quoting SAP Co-Chairman Hasso Plattner as "satisfied" with a 7% drop in quarterly profits. Choke.

MARYFRAN JOHNSON is executive editor of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

PeopleSoft is hanging on through plummeting sales and a dispirited management team. Baan is a nightmare of fleeing executives, layoffs, losses and user upgrade problems. J. D. Edwards slid into crimson ink with a $10 million loss in its latest fiscal quarter. Oracle, the No. 2 ERP vendor, is still profitable but faces a major upgrade campaign to entice legions of green-screen users over to Web-based versions of its applications next year.

Of course, this cycle of boom-and-bust popularity is all too familiar to IT managers, who have been through the glory days of client/server, data warehouses and intranets. But there's more behind ERP's fall from grace than market maturity, mismanagement or the decline in Y2K project needs. While IT shops were building complex, proprietary new legacy ERP systems, the future was rapidly reconfiguring around the open-standards-based Internet. The care and feeding of these gargantuan, inwardly focused business systems looks strangely out of sync with the outward-bound, customer-focus direction of e-commerce.

So what now? Well, second-generation Web settlers are keenly aware of the need to align their sites with core business strategies and information — which often means linking up with and leveraging all that back-office ERP technology. Indeed, the quality of that connection between this new legacy and the face-to-the-customer part of your business is increasingly crucial.

But watch for the vendors that really deliver on their promise of second-generation ERP. Watch for the ones that focus on Web-based applications in supply-chain, customer-relationship management, and so on. Those are the survivors who will walk out of the trauma ward under their own power.

DAN GILLMOR

UCITA is going to hurt you if you don't watch out

ALL IT MANAGERS have their share of horror stories in dealing with software and the companies that sell it — buggy products, slow response by vendors and so on. But if some proposed legislation becomes law around the U.S., your worries may just be starting.

By the time you read this, the National Conference of Commissioners on Uniform State Laws (NCCUSL) is likely to have endorsed the Uniform Computer Information Transactions Act (UCITA). This legislation is high on the software industry's wish list, because it would tilt the balance of power to vendors — and away from users.

DAN GILLMOR is technology columnist at the *San Jose Mercury News*. Contact him at dgillmor@sjmercury.com.

Even if the mounting opposition somehow persuades the commissioners to back off, recent history shows that the software industry won't give up. This issue isn't going away, no matter what happens at the commissioners meeting this week in Denver.

A variety of reputable consumer and professional organizations oppose this proposal — among them, the Federal Trade Commission, the Association for Computing Machinery, the Association for Information Management and Consumers Union. Here are some of their objections:

- Sellers could legally disclaim any obligation to sell products that work. They would be legally immune even if they knew about defects before the sale and deliberately failed to disclose the defects, no matter how serious.
- In the event of a dispute, a vendor could disable a customer's software remotely, even if that totally disrupted the customer's business. The seller would have a unilateral right to decide that the customer was violating the terms of the contract; a buyer would have to take the vendor to court in response.
- Reverse engineering, used by security experts to examine software, could be prohibited, increasing the risk that buggy products and viruses would go undetected.
- A vendor could prohibit a user from publicly commenting on the quality or performance of a product. In other words, if it didn't work, you couldn't tell your colleagues at other companies or vice versa.

UCITA is itself a backup plan. The industry's original strategy was to get a rewrite of the Uni-

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JULY 26, 1999

AberdeenGroup

The Converged Voice & Data Network:

Searching for the Holy Grail

COMPUTERWORLD

SEARCHING FOR THE HOLY GRAIL: THE CONVERGED VOICE & DATA NETWORK

By Virginia Brooks Aberdeen Group

The two crucible factors of the 1990s have been the incredibly rapid adoption of the Internet and Internet (IP) technologies by the business world, and the 1996 Telecommunications Deregulation Act. The combination of these two events has brought about acquisitions breathtaking in their magnitude, technology morphs and previously unimaginable partnerships. It has also re-launched a crusade for that Holy Grail of networking, the converged voice and data network. For more than a decade, visionaries have talked of a single network that could deliver it all: data, telephony, video and other network services. The question is, will this crusade be a classic Knights of the Round Table quest, or something more like the misadventures of Monty Python?

Communications vendors say we've almost found the Grail. Every major player has a convergence strategy, has acquired companies and technologies to supply the missing pieces, and has announced product roadmaps. The big difference in the many approaches? Whether a vendor has significant legacy voice equipment that it must take into account moving forward.

For instance, Cisco Systems, unencumbered by a legacy voice heritage, was one of the first vendors to seize on the convergence opportunity. Its New World strategy—data, voice and video on a single IP-based data network—is based on an approach that moves from the WAN backbone through multiservice gateways to policy management. Putting its money where its technology is, Cisco has an ambitious convergence strategy for its own network. In the next 36 months, it hopes to replace its internal intranet, extranet and access networks with a multiservice-capable Internet or IP virtual private networks (VPNs). Cisco currently runs Voice-over-IP on public ATM and Frame Relay as well as private Frame Relay.

In June, Nortel Networks Ltd. introduced its open-standards Internet Communications Architecture (Inca). Based on a portfolio of voice devices, data networking equipment and communications systems, Inca includes enhancements to Nortel's existing products as well as new products that combine the extended feature set and reliability of voice and fax networks with the multi-service capabilities of IP networks.

Lucent Technologies, 3Com Corp. and Cabletron Inc. also introduced convergence solutions in early 1999. Even Intel has entered the fray, acquiring Level One Communications Inc., a supplier of components for telecom and networking

Virginia Brooks is Group Vice President of the Networking and Telecommunications Practice for Aberdeen Group, an IT market research and consulting firm in Boston. She also tracks internetworking hardware and software, specializing in the fields of remote access and wireless. She also follows developments in network outsourcing and network channels.

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applications, and Dialogic Corp., a manufacturer of computer telephony components.

Persuasive economics

The arguments vendors use to persuade businesses to move to a converged network architecture are economic, the most obvious being savings on long distance calls. They also cite reduced operational costs, higher performance, enhanced messaging features, faster application and service deployment and greater flexibility, integration and control. Projections of savings go as high as 50% for combining all types of data (including phone lines) over a single packet/cell-based infrastructure across both the campus and wide area, to an average internal rate of return of more than 135% for voice/data convergence.

But skeptics in the user community point out that dial tone is always there—and the data network is not. The idea of having to reboot the phone system as often as we reboot desktops or laptops isn't a pretty prospect. Even the cognoscenti have their doubts. The last time our network went down, one of my colleagues said, "This is why we'll never run voice on our data networks."

The truth is hiding somewhere in between. Convergence *will* happen. And although some "voice-enabled" solutions are shipping, even the most enthusiastic proponents of converged networks concede it will be a good 18-24 months before enterprise IP telephony solutions are truly viable. Don't let recent surveys fool you. IT executives who say they're running voice and data or data/voice/video on the same network are most likely moving multiple services over the same WAN access line, but in separate channels. The reality of convergence is two to five years away; there are several reasons why it will take that long.

First, current packet telephony offerings do not meet the requirements for full-blown system-wide implementation. To their credit, convergence vendors have been willing to admit that. They cannot yet deliver the scalability, availability and PBX-equivalent feature sets needed in an enterprise-wide environment. That is why adoption will occur in phases, initially in segregated LANs or branch offices, then gradually throughout the enterprise network.

Quality of Service issues

Voice and video applications require different Quality of Service (QoS) levels than does data. Data has traditionally been a "best efforts" proposition. Latency is generally not an issue. Voice and video applications, however, are sensitive to latency and jitter. Phone networks, for example, are designed to provide less than 400 milliseconds of round-trip latency. The end-to-end QoS and prioritization that voice (and video) over IP will require cannot be satisfactorily guaranteed today.

One must realize that there are a minimum of two networks involved in the delivery of converged applications, and each has its own issues with QoS. One network—the LAN—can be controlled by corporate IT. While QoS capabilities have been available in enterprise ATM-based networks for a while, many network managers choose not to turn on QoS features because they are too cumbersome and complicated to administer.

The IEEE has developed techniques for identifying and prioritizing traffic in the LAN, including interactive voice,

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Everything you know about CR goes double in a blended

This story was written by David Puglia, vice president, product marketing, of Aspect Telecommunications. The story was supplied by Aspect.

The call center industry, like most other industries, is captivated by VoIP (Voice over Internet Protocol), with specific interest on the potential for optimizing customer service and e-commerce through blended media contacts. Access to call center functions via the Internet is emerging as an important complement and business driver for e-commerce applications.

Although challenges remain in its implementation, the future is here now—VoIP technology is enabling simultaneous voice and Web contacts. IT and call center professionals need to remain as focused on the objective of blending media contacts as on implementing the enabling technologies. The fundamental objective should still be strengthening the relationship between customer and business to enhance the company's bottom line: customer relationship management (CRM).

The application of a CRM strategy doesn't change significantly in the new world of blended media contacts, since many, if not most, of the same considerations pertaining to voice contacts are relevant to blended media contacts. Among these are:

- Consistency of the customer experience
- Catering to customer preferences
- Sharing data among agents
- Scalability of the CRM system

Companies need solutions to improve the IQ of every part of their business, including automating and blending the contact center, connecting that center to front- and back-office systems, and creating optimal workflow and business rules that collect, transmit and utilize information. One such solution, the Aspect® Customer Relationship Portal, helps assure consistent interaction, consistent integration and consistent information, providing the greatest value for the customer and the business.

Remain constant in your quest for consistency

Ensuring a superior, consistent customer experience is a prime consideration. In a traditional telephone call center, a successful CRM strategy depends upon providing consistent quality from agent to agent, regardless of which agent takes the call. With the introduction of the Internet, the call center has evolved to become a "contact center."

And while the technological challenges increase as the contact options increase (voice, fax, e-mail or Web), the requirement is the same: a well-integrated contact center should provide the customer with a uniformly excellent experience.

Catering to your customer's preferences is good business

When customers choose a contact medium, they are sending a message: "I prefer to interact with your company on my own terms. Please respect my choice and accommodate me." It makes good business sense for you to do everything possible to respond positively to that customer request. From a cost-effectiveness standpoint, a single system that can accept all media is preferred over redundant systems for individual media. The Aspect Customer Relationship Portal, as the foundation of a CRM solution, allows customers to reach you in the manner they prefer—voice, fax, e-mail or Web—and increases the opportunities for profitable interactions.

ADVERTISEMENT

RMedia environment

Make your contact center agents more intelligent

Contact center agents who know more about your customer's needs and their history with your company can work smarter—to your customer's benefit and to yours. The easiest way to make agents smarter is to provide them with useful data instead of unorganized masses of unprocessed information. Agents should have immediate, cross-referenceable access to everything from account numbers to recent purchases to product information in order to serve the customer most effectively. The Aspect Portal can harness data mining techniques to allow the transfer of corporate memory to agents handling any contact, making all agents instant experts on any customer's account.

It is important to have the capability to access data in a live transaction as it moves from self-service (either Web-based or interactive voice response [IVR] for example) to an agent-assisted contact. Customers expect that the information they entered in the self-service mode will be available to the agent with whom they're speaking, so businesses need the solutions to bridge that transition. The Aspect Customer Relationship Portal has that capability—and more. Aspect's solutions can "supercharge" the contact center to:

- Manage e-mail messaging
- Provide a "call me" feature to facilitate voice interaction or callbacks over the Internet or phone lines
- Enable shared simultaneous browsing of a Web site by the customer and the agent
- Permit online text chat.

Plan ahead to manage growth

A "closed" or proprietary system may be able to handle the demands of thousands of e-mails each day, along with tens of thousands of phone calls each hour, but may not be up to the stress imposed by the addition of Web responses.

Open architecture systems can offer more flexibility and scalability and, given the demand curve that multimedia and blended media requirements project, scalability will be a high priority. For solutions to these demands, look to vendors such as Aspect that employ open standards.

Leverage your investment in systems, people and training

Mixed media is indeed the future of contact centers, but companies can't ignore the investment they've made in current systems as we evolve to these mixed-media systems. Call centers have equipment and software that can be leveraged to create a new mixed-media solution. Equally important are the investments in staff and training that are already in place. Any mixed-media solution you consider can incorporate and leverage the strengths of your present system. The business logic of protecting your investment is unassailable—and open systems are more likely to integrate with your present system.

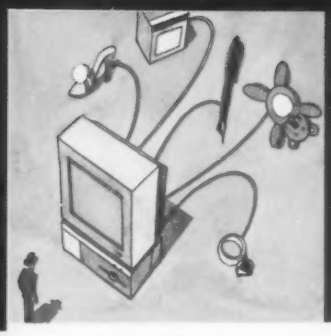
Customers are moving to multiple media, are you?

The movement to Internet media (including VoIP, e-mail, and interactive sites) is increasing. Customers are wired to the Web and are using it for e-business of all sorts in increasing numbers every single day.

Do you have the ability to respond to your customers who want—and even demand—access to you via contact other than telephone? The technology issues are close to resolution. What remains are the business issues of maintaining the quality of the customer contact experience, strengthening that relationship, and enhancing your bottom line.

The successful manager will take what has been learned from the last two decades of call center management and apply it to a CRM strategy across all contact media. And that process becomes much easier, faster and more cost-effective when you use technology solutions such as the Aspect Customer Relationship Portal.

For more information on Aspect, the Aspect Customer Relationship Portal, and Aspect's CRM solutions, call 1-800-493-7878, ext. 72, or visit www.aspect.com/cw1.



interactive multimedia and streaming media. These techniques for expedited traffic capabilities that support transmission of time-critical information have been incorporated into the 802.1p standard, which uses tags to indicate eight traffic classes. Switches that are compliant with 802.1p will recognize these tagged values and forward prioritize traffic accordingly. LAN switches will require multiple queues implemented in hardware so that lower priority traffic can be buffered while higher priority traffic passes through.

The other network is the WAN. If the enterprise WAN component is a public or a semi-private data network, it falls under the management of others. This means that once packetized voice ventures out from the enterprise LAN onto a non-private WAN, IT managers relinquish their ability to control such things as latency and QoS.

I make this point because a packet's odyssey on the public network cannot be predetermined. There are intricate peering agreements in place among service providers, so IP traffic may travel on several networks in the cloud. Not all these networks offer the same level or QoS, nor is there yet a lingua franca for policies and priorities that all networking devices can understand. Real QoS capabilities cannot cross yet from the enterprise into the service provider networks. Efforts are being made to map LAN QoS capabilities to the Internet and wide area.

If the Internet is to be used to transport voice and video as well as data effectively, QoS that can guarantee maximum delay and a rate for each traffic flow is needed. This is what we really mean when we talk of QoS for the Internet. . .and it is critical to the success of convergence.

Flows will need to notify the network of their requirements via a signal. Resource Reservation Protocol (RSVP), through which signaling is implemented in networks today, can process requests from the receiver, but cannot determine which path and queue to use for a given flow. Also, its negotiation is complex and causes delays. IP architects are investigating other designs, such as using the Diffserv bits in the IP header to indicate one of several standard QoS options, and are determining QoS policy by packet-sniffing, looking for data like protocol and port type.

Priority queueing

Every router or switch that processes a flow will need to maintain the guaranteed delay and rate. To do this, IP switches and routers will have to perform priority queuing and ensure that oversubscription can be avoided. IP today lacks a signaling scheme that can provide feedback to user processes on rates, such as the fact that the rate is not available or what the current maximum available rate is.

Switches will also need to know when they sent the last packet in a given flow, in order to schedule the next one. This information, referred to as per-flow state information, is not currently part of IP's schema. Without per-flow state information and some form of weighted-fair queuing, voice and video transmissions will not achieve toll quality. This being said, Aberdeen predicts that the latency and jitter problems that affect IP telephony call quality will be corrected in two years, to the point they are no worse than, and may be superior to, that of digital cellular service.

Once adopted, the multiprotocol label switching (MPLS) standard will serve as a building block for multiservice net-

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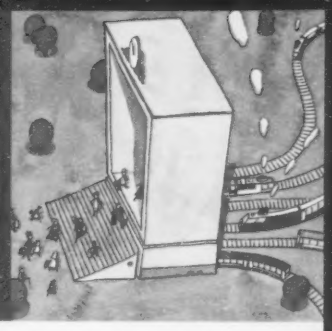

works. MPLS will offer a standard way for network packet switches and routers to exchange traffic prioritization information, emulating the dynamic virtual-circuit capabilities of ATM. By helping create a unified transport mechanism, MPLS will also help integrate the process of transferring IP packets and ATM cells.

Looking ahead: Adoption curves and changing roles

Converged networks will be accepted gradually. Migration paths require a heavy dose of realism, and occur in phases determined by two factors: the state of the technologies required to build converged networks and the savings that can be realized in moving to a single network.

Aberdeen does not subscribe to the "throw out the PBX" vision of voice/data integration. Most firms, unwilling to abandon their investment in voice equipment, will maintain their current voice infrastructures as long as possible. The adoption of converged networks is not unlike that of client-server architectures within mainframe institutions. No enterprise ever contemplated unplugging its mainframe the minute a server appeared on the premises.

Even if convergence will not be a *fait accompli* for several years, it is not too soon to start planning. Enterprises need to approach convergence as an end-to-end concept and should plan for a phased adoption. The key is establishing ongoing communications with line of business decision-makers in order to be prepared for any applications they might be thinking of introducing that would have convergence requirements—such as Web-enabled call centers with an IP telephony component.

Despite what vendors claim, the act of turning a conversation into packets means that there will be a certain amount of inherent latency. Current IP infrastructures must be rock-solid in order to support additional voice traffic while maintaining user satisfaction. High traffic and increased latencies have a major impact on voice quality, which will degrade as latencies increase. An easy-to-implement backup contingency plan for voice traffic is essential in case the network goes down.

The role of the telecommunications manager will need redefining. Cabling will no longer be the purview of the telecom manager, since the existing data network will carry voice. The telecom manager will instead become part of the application and network deployment team, focusing on LAN-based phones and PBXs, making sure that the integrity of voice is not compromised.

Network decision-makers must select convergence implementation partners carefully. For most systems integrators, deploying converged networks is a challenge that demands new skill sets. Basic requirements include a deep understanding of the idiosyncrasies of data networks as well as the reliability requirements dictated by voice. Seek channel partners whose vendors have encouraged them to develop voice expertise via training programs and are giving them incentives to become convergence specialists.

A final word of caution. The hardest challenge may be political. Convergence is a threat to both the networking and telecom sides of the house. Unifying systems means being able to do more with less—including staff—and can create uncertainty and anxiety. Protecting your turf is instinctive. Facilitating communication and team building can help alleviate an otherwise difficult situation.

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form Commercial Code, the system designed to ensure uniform laws dealing with commerce. But when the American Law Institute — the NCCUSL's co-drafter of Uniform Commercial Code proposals — listened to the opponents and backed away from the idea, the software companies persuaded the NCCUSL to push ahead with UCITA anyway. (For more history and information, check out a detailed account at *www.infoworld.com/ucita* at the Web site of *Computerworld*'s sister publication *Infoworld*.)

If the commissioners endorse UCITA, the proposed law would move into state legislatures around the nation this year. Whatever happens, the industry's relentless pursuit of this legislation should be a wake-up call to other IT people.

Get ready to fight this legislation in your statehouses. Whether it's UCITA or something else, the software barons won't stop pushing against your rights. Stay on your guard, or you'll regret it. ◗

DAVID MOSCHELLA

FCC should stand firm: Don't tie up the cable industry

IT'S TIME for Federal Communications Commissioner William Kennard to make a decision. Our nation's top telecommunications policy-maker should tell America Online and all the members of the OpenNet coalition, as well as all the nation's local utility commissions, that he won't support their efforts to force cable operators to open up their networks to all comers.

DAVID MOSCHELLA is an author, independent consultant and weekly columnist for *Computerworld*. Contact him at dmoschella@earthlink.net.

High-speed telecommunications services are on track to become competitive businesses, and companies should be able to make their own decisions about whom they want to work with.

Make no mistake; this isn't just another communications industry story. The emergence of high-bandwidth, consumer Internet access will eventually mean a great deal to businesses and consumers alike. Certainly, Web sites will be able to take much better advantage of audio and video possibilities, while telecommuters will be much more able to use T1-class corporate networks. Whether widespread, high-bandwidth access arrives in five years or 10 will say a lot about what the early years of the next century will look like.

Thus, government policy in this area should be driven by two main goals. The FCC should decide which policies will result in the most rapid industry evolution and which ones are most in line with the commission's long-term effort to bring real market competition to the telecommunications sector. Both argue strongly for letting companies make their own decisions.

The OpenNet coalition, which is led by America Online but also includes GTE, US West, MCI WorldCom, MindSpring Enterprises and others, argues that FCC intervention is needed to prevent the emergence of cable operators as new telecommunications monopolists. With high-powered lobbyists such as Greg Simon, formerly Al Gore's chief of staff, they have certainly learned the public relations game well. For example, the very name "OpenNet" employs the tried and true technique of the Clean Air and Clean Water acts. Nobody wants to be in favor of closed networks, just as no one is in favor of dirty water.

But the reality is that OpenNet has become, along with limited Y2K liability, part of a disturbing trend toward hypothetical policy advocacy, in which governments are urged to respond to potential problems — not real ones. If cable operators actually become Internet monopolists and really do begin to harm consumers, then the FCC should act. But between telephone Digital Subscriber Line technology and high-speed satellite and wireless systems, there's a very good chance that cable operators won't be monopolists at all. So why not treat them like any other company until reason suggests otherwise?

Additionally, there's a dirty little secret that neither side is eager to reveal. Consumers aren't exactly stampeding toward the current high-speed offerings. When such services are first introduced, lots of Internet enthusiasts rush to sign up, but the rate of acceptance soon slows considerably. AOL won't talk about that because that fact totally undermines its case; AT&T, TCI, MediaOne et al. don't talk about it because it deflates their much-valued market hype. But surely the FCC knows that cable modems won't monopolize consumer Internet access any time soon.

Sometimes any decision is better than no decision. If AT&T is going to invest more than $100 billion in the cable business, shouldn't it at least know what the ground rules are? Given the importance of this issue and the recent anti-cable decisions in Portland, Ore., and Broward County, Fla., it will become unconscionable for the FCC to sit on the sidelines much longer. A decision is needed, and, to me, the decision is obvious. ◗

READERS' LETTERS

Reader spots blemish in crystal address

FIRST OF ALL, I have to confess that I do not keep up with your magazine like I should. I do enjoy reading it when I have the opportunity.

Yesterday at lunch I was reading the e-commerce cover story ["New Covenants Ease Online Channel War," News, May 17]. The article was very interesting and reported on a subject I had never given much thought to.

I was particularly interested in the blurb about Waterford Wedgwood PLC.

However, I was more than slightly appalled to see that the Web address and screen print in the article were not for the Irish crystal maker, but rather for a reproduction antique furniture outlet.

The address for the crystal maker is *www.waterford-usa.com*.

Rhett Shumpert
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Manager can identify with e-mail pain

PAUL GILLIN'S article "Peril by E-Mail" [News Opinion, June 21] really hit the mark.

In my role as the systems operations manager for a small company, keeping out the threat of viruses seems to be a growing duty. Even users without outside e-mail access are being infected. I hope that a solution to the problem comes soon.

Kevin Chambers
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Delta's systems no panacea for rudeness

IT'S COMMENDABLE that Delta plans to spend so much money on improving systems to provide better customer service ["IT Revamp Boosts Delta Service," News, June 14], and I disagree with Michael Zea's comment that it's "not worth investing" in "exception processes."

However, being one of Delta's "20 million inconvenienced passengers" last year (a lovely 10-hour wait in the Dallas-Fort Worth International Airport lounge on the way to a conference), I can tell Delta firsthand that these new systems won't solve everything.

The problems I experienced last October were caused by rude employees with a lack of knowledge about how to handle problems.

No amount of IT spending can rectify that.

Laura Bray
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IT companies will get back to core business

I CANNOT AGREE more with Jim Champy, in his column "Lost in Business" [Business Opinion, June 28]. With so many IT companies diversifying their products and services, it has become very difficult for any client to identify the true speciality of his business partner. This "one-size-fits-all" mentality stems from the business arena, where big retailers are opening up their shop floor to accommodate all types of merchandise. A good example is the way Wal-Mart is expanding into the grocery business.

I am sure that a time will come when most of the companies will come back to specialize only in their niche markets and realize that their neighbor's business is not their cup of tea.

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COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Allan E. Alter, columns editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-8931; Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

ROBERT L. SCHEIER

Beware of enterprise portal pitches

YOU'RE HEARING the pitch from every software vendor: We're not just selling you an application, we're selling you an enterprise portal.

And just what is an enterprise portal? It's any system that lets an employee use a Web browser to get all the corporate information he needs, regardless of the source. The interface will be customized — financial controllers in a single business unit get one set of data and analysis tools, corporate chief financial officers get another. Employees will be able to view their 401(k) balances and vacation time, but not those of their cube mate. And it's all done automatically.

ROBERT L. SCHEIER is the technology editor of *Computerworld*. If you're dying to take your ERP system to the next (Web portal) level, contact him at robert_scheier@computerworld.com.

Sound good? Wait, there's more! Do you want your personal calendar and to-do list to pop up in your personal portal? You've got it! Real-time stock quotes and news stories about competitors? It's yours! Color-code the data? We can do it!

It's a great idea today, just like it was 10 years ago, when it was called an Executive Information System. Substitute the words "client PC" for "Web browser," and it's the same pitch I've heard over and over, from not only vendors but customers, too.

The problem is that making it work is a bear, and just adding the magic words *Web portal* doesn't make it any easier. Try the following four problems on for size:

1. Different databases: Your to-do list is in one calendering application, if not in a paper organizer. Sales data comes from a database optimized for transaction performance, not spitting out reports. Manufacturing data comes from — oops! — those same enterprise resource planning (ERP) apps you had so much fun tapping for your data warehouse. Then there's unstructured data, such as news stories you have to find, categorize, massage and insert into your portal. Web technologies, Extensible Markup Language for tagging data and embedded Java to access databases will help in the long run, but they're not there yet.

2. Remote access: Ever tried even simple database replication, such as that in Lotus Notes, over an unreliable phone line? Ever tried to figure out, on your own, how to create a local copy of a Notes database from the server? Get ready for big-time support and remote-access costs when users begin relying on these portals every day.

3. Customization: Personal portals require giving every user, in effect, a custom combination of data in a custom interface. The Web does offer some customization tools, but true customization requires a lot of back-end work — and there's nothing about using a Web browser instead of a conventional fat-client on the front end, which makes the back-end work much easier.

4. Application development and maintenance: Each of those custom portals will require a certain look and feel, response times, database access, links to other systems, maintenance and buy-in from users. Just imagine the fun involved in telling the CFO why you can't afford to do the custom coding he needs to drill down on capital expenses for your new Patagonian subsidiary.

But don't worry: The same well-trained and reasonably priced consultants who got your initial ERP implementation up on time and within budget are ready to help you sort through these problems. ◗

ALLAN E. ALTER

Has the Valley gone over to the dark side?

ONCE, SILICON Valley stood for innovation and apple pie entrepreneurism, but something's gone greedy and wrong. Once insanely great, the Valley is becoming merely insane: home of bug-eyed speculation, egomaniacs and the stink of fast money.

ALLAN E. ALTER is *Computerworld*'s columns editor and Managing department editor. Contact him at allan_alter@computerworld.com.

Long before a bear market descends, this Las Vegas West is going to mess up the rest of us IT types.

The catalyst for my comments is Po Bronson's entertaining and alarming new book, *The Nudist on the Late Shift and Other True Tales of Silicon Valley*. Bronson, a novelist and longtime writer for *Wired* magazine, is to Silicon Valley what Upton Sinclair was to the Chicago stockyards. Bronson writes he's become less jaded about the Valley. But I wonder, what are people with hard-core IT responsibilities to make of his tales?

Like Hollywood, Las Vegas West is such a magnet for the star-struck that people will do anything to be there. In Bronson's book, people grow pot to fund their start-up or lie about their Cobol credentials to land a rent-paying job. Here, managers are so desperate for programming talent that they'll recruit strangers observing a company softball game. It gets you wondering who's going to be on the other end of that customer support line or certifying that the company's product is Y2K-compliant.

The dice-throwing Valley-dwellers are letting their humanity slip away. Young entrepreneurs shed family and friends to work 18-hour days and pay employees chunk-light-tuna salaries for a chance at stock options. Klunkware companies pay huge money to vaporware makers in order to send the right smoke signals to Wall Street. Salesmen sell products they know won't work and will create support nightmares because investors demand 50%-plus revenue growth. Where does caring for customers fit into that?

Customers — that's a word rarely seen in Bronson's *Tales*. Capitalism works best when owners must make customers happy in order to make money. It's like a restaurant: The service is always better when the owner's out greeting the diners. But in Las Vegas West, the connection with the customer matters little because the big money is in the IPO or the buyout by a larger company.

Of course, start-up companies and venture capitalists have long dreamed of humongous IPO paydays. The difference now is Internet Time. In the past, it took time to cash in because it took time to develop clients and real products. But in Internet Time, you may have only months to score. You've got to get out there first with something, anything, so you're ready to be snapped up when larger companies go on an acquisition spree. If someone else gets there first, you can miss that big payday.

The consequence is that the incentives are screwed up. Quality takes a distant backseat to speed; it's more important to be first than to excel. Promise them anything, but don't let them know your back-end systems are spun out of cotton candy. You'll fix that. Someday.

During the best of times — like now — it's an environment that encourages greed and shoddiness. And when the worst of times finally come? When the bubble bursts, there'll be orphaned products and technologies, stranded customers and users, and enough broken dreams to water Nevada with tears.

It comes down to trust. IT can't be effective without it. But Valley culture, pressures, ambitions — heck, even its real estate prices — are piling on the temptation to sideswipe users and cut corners in the lunge for the big kill.

I know the Internet has led to a wonderful explosion of technical creativity. Many of the Valley's innovations have been given away for free or have forced down IT costs. And there's a chance that the Net will one day lead to a new, lower-cost, easier-to-maintain approach to computing.

Nevertheless, Silicon Valley-style cybercapitalism is spinning out of control. Trust, the most endangered species in the IT ecosystem, is being left for dead in the passing lane of U.S. 101. ◗

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Although he knew his current position was,
to say the least, compromising,
Oscar's urge to dig deeper was too strong to resist.

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BUSINESS

GLOBAL SITES, TAKE NOTE

Marketing your Web site to customers overseas? Package delivery companies want to help you. They're evaluating logistics software they hope will automate the intricacies of international shipping. ▸ 40

SALES IN SYNC

Furniture maker Haworth is using an intranet and a Web-based collaboration tool instead of new sales force automation software to keep its sales force in sync. Although conceived as a workaround, the method was cheaper — and faster to deploy, too. ▸ 40

IRELAND WANTS IT TO COME HOME

The Emerald Isle is a land of opportunity these days, with some experts expecting 3,000 more software jobs to be created there in the next three years. So the Irish are recruiting in the U.S. — persuading their own IT émigrés, as well as Americans, to move across the Pond. ▸ 48

A 'GOOD' VIRAL?

Guess what: A "viral" Web site is supposed to be a good (that is, catchy) thing. But you could have fooled the Jargon Judge, who notes that viral is usually something *bad*. ▸ 49

QUICKSTUDY

When asking finance for money for an IT project, being able to calculate the net present value can give you an advantage over other departments competing for the same funding. ▸ 52

FBI: KEEP GOOD RECORDS

Companies are more willing than they used to be to report major hacks, but most don't know how to go about gathering evidence. Two former FBI investigators advise them to keep good records; the pros can do the rest. ▸ 40

S&P DOES RISK

Neural networks and predictive analysis seem like space-age technology, but Standard & Poors and others are using them to identify which companies are good credit risks — and which to avoid. ▸ 38

EASE ORG CHART MAINTENANCE

The pain of creating organizational charts can be alleviated with tools that help publish the information graphically to intranets. Several users are saving money and increasing accuracy. ▸ 38

VINTAGE IT JOBS

Harvest time is busy for IT, too, as California's Kendall-Jackson Winery shows. But executives get to face the vineyards, while IT gets a view of the parking lot. ▸ 54

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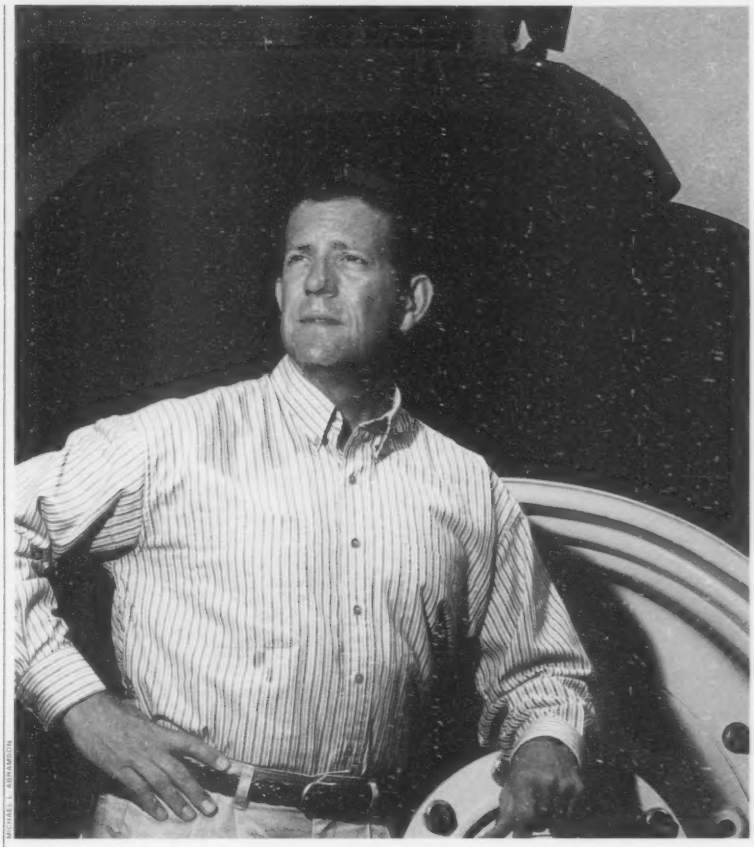

MICHAEL J. ABRAMSON

SMALL SUPPLIERS, BIG Y2K RISKS?

LARGE COMPANIES may be close to getting their year 2000 houses in order, but it's in their best interest also to check on the compliance of the smaller companies that supply them with goods and services. Steve Jost (pictured) at Deere & Co. has been offering year 2000 help to some of his company's suppliers for several years now.

44

Affinity System Keeps Fans Coming Back

Databases, swipe cards help teams reward their most profitable customers

BY STEWART DECK

Minor league baseball's Carolina Mud Cats have boosted attendance this year by 40%, thanks in part to a new fan-loyalty database. Bill Gunger, who oversees information technology for the Mud Cats (the AA affiliate of the Colorado Rockies based in Zebulon, N.C., near Raleigh), said the new Top Cat Club fan appreciation/loyalty program entices people back to the team's new park and draws in sponsors wanting to target ads.

The Mud Cats is one of a growing number of teams that are overcoming the difficulties of customer affinity programs at large-crowd events by using up-to-date database and scan-card technology. Now, they can instantly sign up fans and provide them with coupons to learn who's going to games and how to keep fans coming back.

The Top Cat Club rewards fans for attending games: free T-shirts for three games and more attractive prizes for more. "We're getting 300 to 500 new sign-ups per night," Gunger said. Personal and demographic data from sign-up sheets enters the system each night, and more is captured from questionnaires on kiosks when Top Cat Club members scan their cards at the park.

The Mud Cats bought a $75,000 system that runs on three new IBM Netfinity servers and an IBM DB2 database that also runs its ticketing, accounting and mail-order operations. The built-in query tools in DB2 let Gunger look up data for targeted mailings and statistics to entice advertisers. "Our biggest challenge will be to figure out how to best use all the data we're collecting," Gunger said.

Ten other professional teams have similar programs, with the help of AIM Technologies Inc. in Austin, Texas.

The Oakland A's counted a 15% reduction in game no-shows, thanks to its FanCard program, said Dave Alioto, director of sales and marketing for the team. Dave Lozow, the A's director of business services, said FanCard helped increase revenue by $200,000 last year just by converting single-game ticket buyers into season-ticket holders.

"We've had great attendance, but people have plenty of options for entertainment," said Charlie Vascellaro, public relations director at Maryland Baseball LLC — the owner of three minor league teams that use FanCard. "We want to make sure we don't take them for granted."

BILL GUNGER, who oversees IT for the Carolina Mud Cats, says the team's loyalty program draws fans and sponsors

Org Charts Pose Problems

HR data tools save time, money

BY CAROL SLIWA

Creating an organizational chart may not seem like the most critical of tasks, but it can be painful for companies with thousands of employees.

Excel Telecommunications Inc. officials estimate they spent up to $106,000 per year to manually chart their 3,500 employees. So the Dallas-based company spent $20,000 to buy and implement Irving, Texas-based TimeVision Inc.'s OrgPublisher tool, which helps companies automatically create and update organizational charts that can be published on intranets for display in Web browsers.

"In our organization, there's a lot of restructuring, so it's really important for executive-level management to know who's reporting where and what the planned head count is for the rest of the year," said Jason Blair, an analyst for human resources at Excel.

"No one likes to talk about this," said Paul Dumas, Excel's vice president of human resources. But, he said, Excel can find scenarios for adding or reducing head count by building salary data into the chart.

Colgate-Palmolive Corp. executives wanted to take better advantage of employee data stored in the firm's SAP AG R/3 human resources system. Previously, Colgate-Palmolive could extract the information into spreadsheets or reports. But with thousands of rows, those documents could give the viewer "vertigo within 15 seconds," said Chester Gittleman, Colgate-Palmolive's New York-based director of human resources information systems.

Gencorp Aerojet exports employee data from its human resources system daily at 2 a.m., and OrgPublisher pops on at 3 a.m. to import and republish the data. "It takes very little CPU time," said Keith Pearce, a manager at Gencorp in Sacramento, Calif.

Also on the market are drawing-based tools from Visio Corp. and Micrografx Inc., said Kevin Gallagher, an analyst at Newport Group Inc. in Barnstable, Mass.

Neural Nets Spot Credit Risks

Systems ease background checks

BY THOMAS HOFFMAN

In the minds of information technology people, neural networks and predictive modeling conjure up images of bespectacled scientists in white lab coats. But over the past five years, advances in e-commerce software have helped banks make those expert systems more accurate in identifying and avoiding customers who are bad credit risks.

Rules-based systems "have gotten better as the pool of users has grown [and made] more statistics available," said Albert Pang, an analyst at International Data Corp. in Mountain View, Calif.

That's one reason the worldwide market for predictive modeling tools in financial services is growing three times as fast as the 7.1% annual growth rate for other financial industry applications, Pang said.

One company that has benefited from their use is Standard & Poors (S&P), a division of The McGraw-Hill Cos. in New York. Last month, it began using a neural network-based system, called Decider, from U.K.-based Neural Technologies to launch an Internet-based credit rating system.

The system, called CreditModel, allows S&P customers (banks and asset managers) to identify the firm they want a rating on and launch the Decider engine, which develops a credit "score" on that company. It analyzes a list of variables, such as the company's debt load, revenue and credit ratings that S&P collected in its files over the years — all at a fraction of the cost of a full rating, said James Satloff, managing director of S&P's global product development group.

S&P typically charges a bank $40,000 to develop a thorough credit rating on a company, which includes human analysis and an official S&P opinion on the firm. CreditModel, a credit score on a company based on statistics, costs $400, Satloff said. He said S&P chose Neural Technologies because it was able to create predictive models quickly and accurately. Makers of competing tools include HNC Software Inc. in San Diego and Advent Software Inc. in San Francisco.

Satloff declined to quantify S&P's investment in the Windows NT-based system — which Neural Technologies markets for between $80,000 and $250,000 — but said his company expects "an order of magnitude return" on its investment. The company has already received calls from hundreds of potential clients, he added.

S&P isn't alone. Lloyds UDT Motor Finance, an Edinburgh-based automotive financing unit of Lloyds TSB Group PLC in London, is using Decider to assess the credit risk of people who apply for auto loans. Users of the system, which has been in place since May 1998, have found they "do not need to have the same level of statistical expertise" as with other credit scoring systems used by the bank, said Patrick Campbell, a marketing manager at Lloyds.

S&P'S JAMES SATLOFF: Expects "order of magnitude return"

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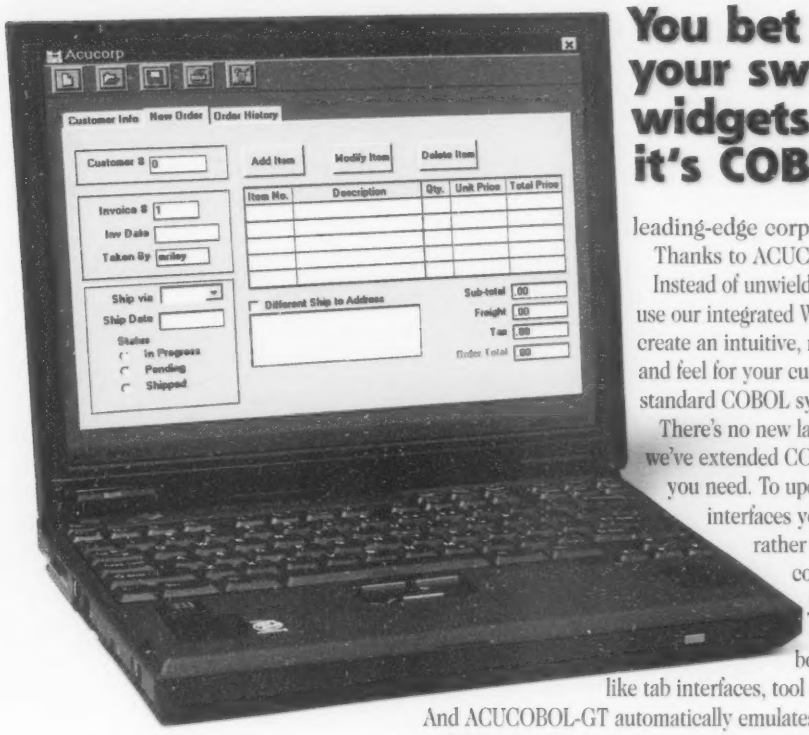

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Web Tool Fills Sales Automation Gap

Furniture maker finds that collaboration tool also costs less

BY DOMINIQUE DECKMYN

A YEAR 2000 budget crunch and delays in installing a new corporate system forced office furniture maker Haworth Inc. in Holland, Mich., to forgo a new sales support application. So the sales department improvised with a much cheaper Web-based collaboration tool usually used to manage projects.

The company discovered the tool, eRoom from Cambridge, Mass.-based Instinctive Technology Inc., while it was examining sales force automation tools about a year ago. eRoom allows real-time chat and offers project-based collaboration sites, or eRooms, where documents and threaded discussions can be stored.

Stretching It Out

Instinctive's eRoom was conceived as a collaboration tool for ad hoc projects, but Haworth has found that it can use the software to create virtual workspaces for topics such as:

- Sales reporting
- Forecasting
- Sales strategy development
- Field sales processes
- Education and training

Haworth has set up about 20 eRooms for areas such as reporting sales and developing sales strategies and field sales strategies. Sales forecasts, for instance, are entered in Excel spreadsheets in a dedicated eRoom. The company has also created eRooms for some of its customers, where they can communicate with sales representatives. About 400 Haworth workers and 100 dealers and customers are now using the software.

New Uses

"As more people see the software, they are coming up with new ways of using it," said John Eichinger, manager of corporate international sales. He said the software helps salespeople in multiple countries work together on multinational accounts.

With eRoom and a Microsoft Corp. Internet Information Server intranet that went live in January, Haworth no longer needs a sales force automation tool that would have cost "almost an order of magnitude" more, Eichinger added. The eRoom implementation cost about $200,000, including hardware, he said.

Haworth decided to replace its early 1990s-vintage sales force automation software about two years ago. The company looked at software from Siebel Systems Inc. and Vantive Corp. but found them rigid, Eichinger said. Then it stumbled on eRoom.

Meanwhile, a year 2000 project was sapping resources. And delays in the company's enterprise resource planning project were making it impossible to implement some crucial elements of a sales force automation system. But in September 1998, Jacquie Karr-Zlotnicki, senior sales analyst and manager of the project, was told she would have to deliver "something" by Feb. 1, 1999, that would allow salespeople and customers worldwide to communicate.

One consultant said a benefit of eRoom is that it requires little or no intervention from the information technology department. Karr-Zlotnicki agreed that was the case at Haworth.

Meanwhile, the consultant said Haworth's application of eRoom is novel. "I would expect to see it more for projects," said David Coleman, managing director of Collaborative Strategies in San Francisco. ◗

Web Pushes Delivery Firms Toward Logistics Software

Package carriers seek global shipping help

BY CRAIG STEDMAN

It may be easy to cross international barriers to buy something online, but the Web hasn't made delivering the package any easier.

So software that can help automate all the intricacies of shipping products overseas is quickly becoming a must-have item for the big package delivery companies.

Many big manufacturers are already well-versed in the complexities of selling and shipping overseas, said Michael Comstock, senior vice president of e-commerce and planning at DHL Worldwide Express in Redwood City, Calif.

But e-commerce "opens this up to more and more people," he said. "You're dealing in many cases with buyers and sellers that are unsophisticated."

Now, DHL and rivals FDX Corp. and United Parcel Service of America Inc. are rushing to evaluate packaged logistics applications that were designed with international trade in mind.

Calculating the cost of tariffs and duties that will be owed on shipments is one priority for the package carriers [News, July 19]. Automating the process of vetting foreign buyers for compliance with export regulations is also high on their wish lists.

Those capabilities are becoming competitive necessities, said Rick Sponholz, global e-commerce product manager at Atlanta-based UPS.

But things are just starting to take shape. For example, FDX — the Memphis-based parent company of Federal Express Corp. and several other package carriers — has invested in Vastera Inc. and is expected to use the Dulles, Va., vendor's software to do export compliance checks.

Stacie McCullough, an analyst at Forrester Research Inc. in Cambridge, Mass., said she expects that soon FDX will announce specific plans for helping customers with global logistics. But FDX officials wouldn't comment on that last week.

UPS plans to start automating compliance checks by October, using software from NextLinx Corp. in Silver Spring, Md. But at first, that will involve only the company's own customs brokers at its shipment hub in Louisville, Ky.

UPS has also begun to evaluate the ability of NextLinx, Vastera and New York-based Syntra Inc. to calculate overseas delivery costs.

JUST THE FACTS

Preparing to Cross Borders

What logistics apps do: Screen imports and exports for regulatory compliance; calculate total cost of shipments; manage consolidation of orders from multiple sources.

Key functionality: A database of government regulations, tariff schedules and product classification data that's usually updated daily by the software vendors.

How widely they're used: Worldwide sales totaled about $60 million last year and should reach $70 million this year, says Boston-based AMR Research.

Compliance

DHL is examining the same software for potential use internally and at customer sites. Calculating shipment costs is its top priority, but export compliance issues "are also part of the equation," Comstock said.

Automating export compliance checks and calculating the full cost of foreign shipments is no easy matter because government regulations and tariff schedules from around the world need to be tracked and updated every day, said John Fontanella, an analyst at AMR Research Inc. in Boston.

"It's a tough nut to crack," Fontanella said. "None of the carriers is doing a great job of it today." ◗

What to Do If You've Been Hacked

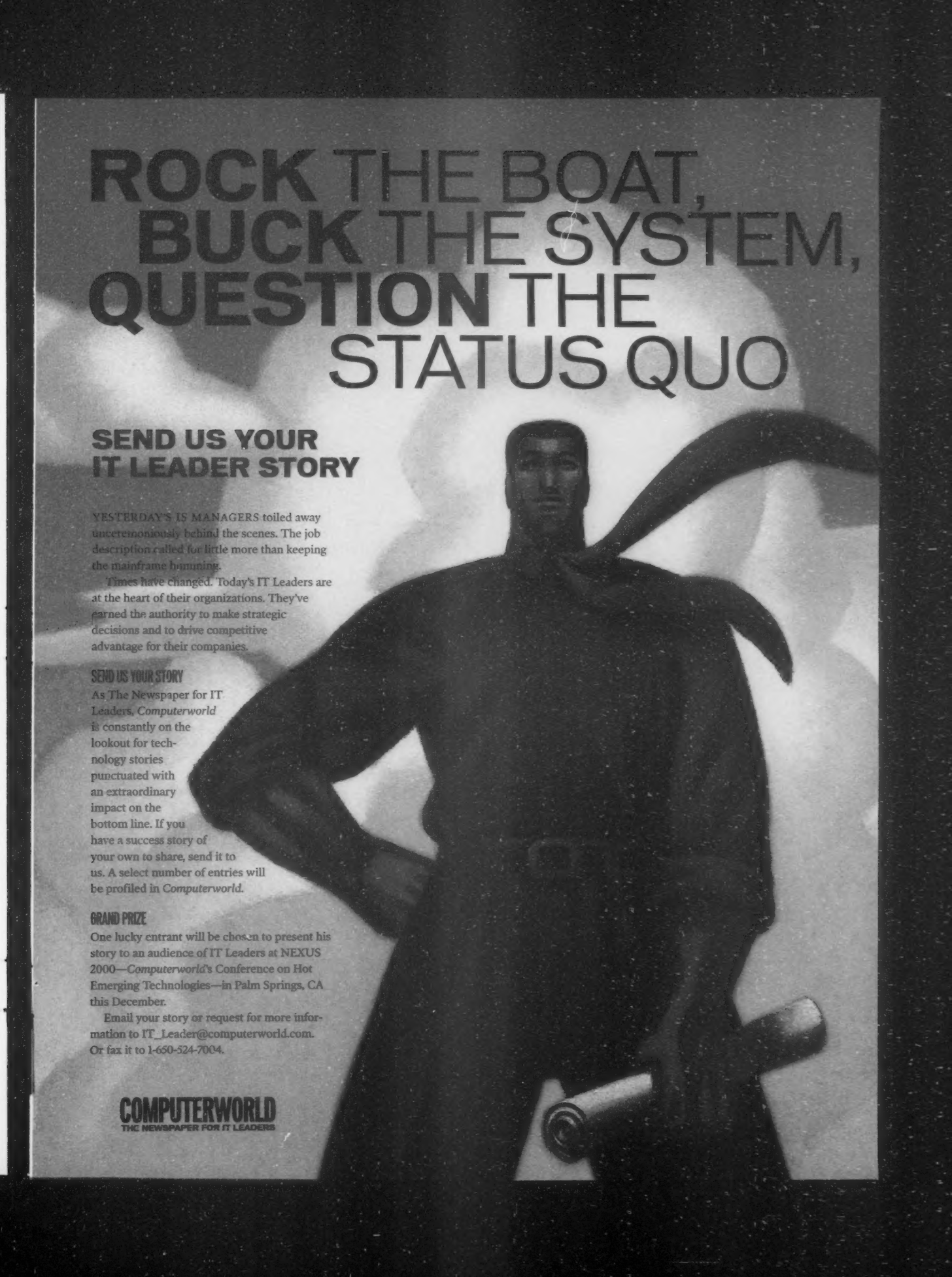
BY ANN HARRISON

Surveys show that more companies are willing to report cracking incidents, but most are still reluctant to acknowledge break-ins. And security analysts said reporting such crimes and gathering evidence can be tricky.

At the Black Hat Briefings computer security conference in Las Vegas earlier this month, Alec Tatum and Richard M. Alu, former FBI investigators who now specialize in damage assessment and evidence gathering at IntelAgents LLP in Annapolis, Md., offered advice to firms that find themselves in this situation.:

- Implement the company's disaster-recovery plan to secure, store and archive company data that might be lost.
- Take steps to locate and preserve evidence using audit logs to identify the origin and time of the attack.
- Keep detailed notes about what steps are taken to secure evidence and back up the data on a tape drive system.
- Don't communicate with anyone about the break-in via e-mail because attackers may be monitoring the company network for such information.
- Evaluate the cost of the incident, including damage to data, the expense of hiring security consultants and the purchase of new hardware or software.

The FBI does investigate cracking incidents, but Tatum and Alu noted that companies with low damage estimates, and those that aren't located close to the major metropolitan areas where FBI investigative teams are located, are less likely to receive assistance. ◗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BRIEFS

$10.9 Billion Spent on Intranets

U.S. companies spent $10.9 billion on intranets last year – one out of every four dollars appropriated for Web-related projects, according to International Data Corp. (IDC) in Framingham, Mass. More than half of large U.S. organizations had intranets in place by the end of last year, IDC said in its "IDC Intranet Fact Book: First Half 1999" report. And, more than 30 million people use some form of intranet.

Net Name Test Extended Again

Network Solutions Inc. (NSI) said it has again extended the testing deadline of the registration system for domain names, from July 16 to Aug. 6. Herndon, Va.-based NSI said the delay will allow the five test bed registrars – America Online Inc., the Internet Council of Registrars, France Telecom/Oleane, Melbourne IT of Australia and Register.com – to record .com, .net and .org domain names.

9% of Apps Have Y2K Glitches

Based on an analysis of 60 million lines of code reviewed by San Jose-based Matridigm Corp., 9% of all programs still contain year 2000 errors and, on average, 185 errors per million lines of code. Among industries represented, the financial services sector averaged the fewest errors – 141 glitches per million lines of code.

Code from the U.S. government and other vertical industries experienced a higher error rate.

Claims System Redesign at $8.7M

Los Angeles-based Farmers Insurance Group of Companies has placed an order for $8.7 million worth of document management software and related services from Costa Mesa, Calif.-based FileNet Corp. as part of an effort to redesign its claims processing network. The new system is expected to remove most of the paper from Farmers' claims processing procedures.

PeopleSoft Outsourcing Pact

Eagle Family Foods in Tarrytown, N.Y., has signed a multiyear contract to continue outsourcing management of its PeopleSoft Inc. human resources management system to reSource Partner Inc. in Columbus, Ohio. Under the agreement, reSource Partner will continue to provide application management, systems upgrades, customer support and training.

College Degree Information

Types of degrees earned by IT professionals:

TYPE OF DEGREE	EARNED	PLAN TO EARN
Computer-related associate's	15%	1%
Computer-related bachelor's	37%	4%
Computer-related advanced	17%	9%
Certification by a major vendor (IBM, Novell or other)	23%	43%
Vendor-neutral professional certification	16%	7%

Base: Survey of 303 IT professionals at companies with 1,000 or more employees worldwide

SOURCE: INTELLIQUEST INC.

JIM CHAMPY

IT's power to transform

THERE'S A LOT OF HUBRIS about the role of IT in business. Include me as one of the guilty. I recall one debate with the editor of a prestigious business school journal. I was arguing that IT was becoming a driver of business change. Retail banking, with the advent of the "virtual" bank, was my case example.

I couldn't make the sale. IT, she responded, was only an enabler. Other, more global factors — like the shift from planned to open economies and the benefits of economies of scale — were the real drivers of business change. Technology played only a secondary role. A techno-luddite, I thought.

Today, I believe even more in the transformative power of IT. Financial services are the obvious place where IT could transform a whole industry. But don't hold your breath. It's taken the onslaught of online trading to wake up the industry to what technology can do. Only a few financial services visionaries — like Charles Schwab and John Reed of Citigroup — have the ambition to lead a revolution. Additionally, there isn't a greater social purpose at work to drive radical change in banking.

So where to look for IT's big impact? Try health care.

It's no news that health care is in crisis — and it's about to get worse. The industry's information systems are failing massively. Many insurers and providers know neither their real costs nor real income until it's too late to do anything about it. The spectacular rise and fall of Oxford Healthcare — an industry darling that was reportedly undone by poor processes and systems — is a case in point.

The industry response to the crisis is to clamp down on pharmaceutical spending and other treatments. Another tactic is to eliminate costly patient segments — like older people — from the ranks of the insured. None of these solutions is consistent with the public good.

As the financial crisis mounts, patients are increasingly complaining about the lack of access to care. Health care professionals complain about being overworked and not having the freedom to treat patients as they see fit. Employers complain about rising costs. Watch them complain even more as health insurance premiums rise 10% to 15% during the next year.

But imagine a health care utopia where you, your family and your associates could get quality care whenever and wherever the need arose, independent of your insurer. With some acknowledgment to the financial services industry, I can now get cash easily almost anywhere in the world. Not true with medical attention.

The transformative role of IT in this industry could be enormous. The possibilities go well beyond fixing financial systems. Great care — that's both universally available and affordable — will happen when we can measure outcomes. These are the relationships between treatments and the results they yield. Massive, shared databases will be required. Additionally, global health care will require universal medical records available to any provider — with the patient's permission, of course.

If well-implemented, technology can transform a whole industry.

To create such an information utility, complementers and competitors will have to come together. Insurers, providers, professionals and IT services companies all have a stake here and a lot to gain. Here, IT will be both an enabler and a driver. And if well-implemented, the technology can serve to transform a whole industry.

As in any undertaking of this scale, other difficult issues will have to be solved — like who pays, who decides on treatment and who profits.

Maybe I'm also too much of an idealist, but with more perfect information, these issues might also be more easily resolved. And there is precedence for collaboration in health care with the human genome project — a large-scale, ambitious effort to find the source of disease. Now a parallel effort is required for health care delivery.

This is an industry that shouts for transformation. It would be a brilliant example of IT in the service of the larger public good. ◗

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. Contact him at JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.

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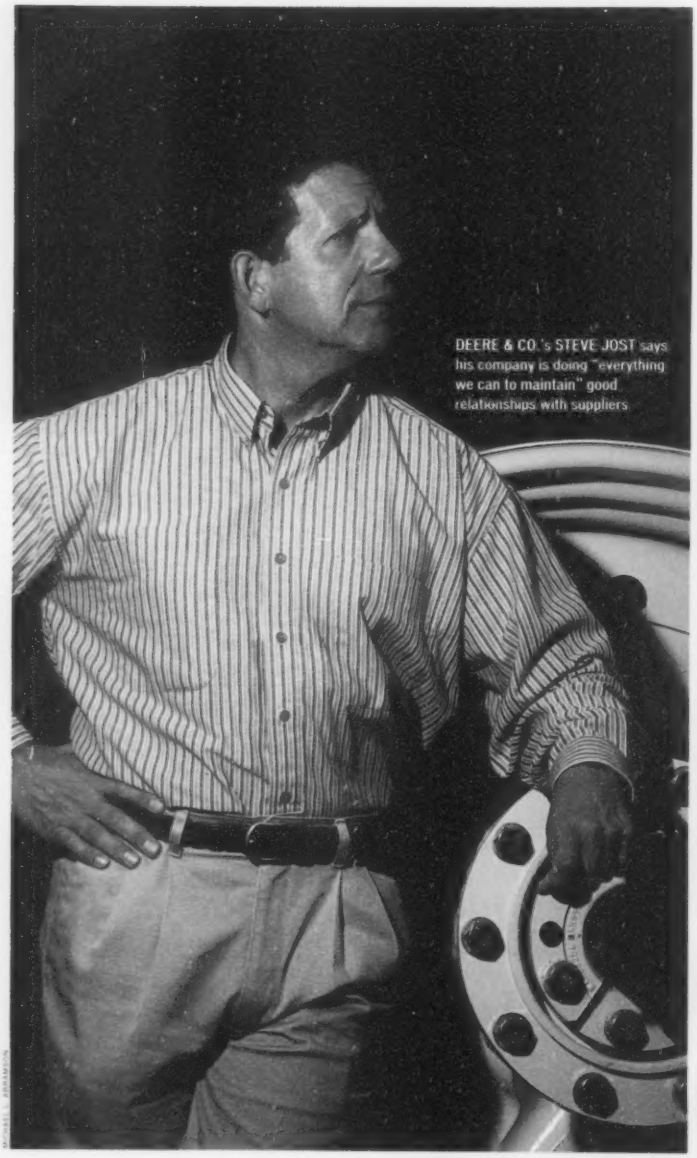


DEERE & CO.'s STEVE JOST says his company is doing "everything we can to maintain" good relationships with suppliers

BIG RISKS FROM SMALL SUPPLIERS

Big companies are getting closer to Y2K compliance – but may overlook the threat smaller firms pose to their supply chains By Kathleen Melymuka

AT LEAST 1.4 million, or 18%, of small businesses in the U.S. won't be ready to handle the year 2000 date change, a situation Sen. Bob Bennett (R-Utah) calls "a serious threat to the strength of the U.S. economy."

Those figures are from a June survey by the National Federation of Independent Business, which points out that disaster lies not just in the possible failure of small companies, but also in the effect that failure would have on industry supply chains.

Yet despite the danger, a recent spot check of Fortune 500 insurance, retail, manufacturing, food, utility and pharmaceutical companies indicates few large companies have done much to lend a hand. "Everybody is really keen on getting Y2K information from their suppliers. But other than the auto industry, I've found almost no one helping their small suppliers cope," says Jim Porter, a partner in the Y2K practice at PricewaterhouseCoopers in Tysons Corner, Va.

No Offers

"We have had a lot of requests about our Y2K status, but no one has offered in any way to give us a hand," says Brett Gardner, year 2000 project manager at Excalibur Laboratories Corp. in South Burlington, Vt., a small company that calibrates test equipment for aviation, manufacturing, biomedical and nuclear power plant customers.

Excalibur has only 10 employees; that's the good news *and* the bad news. Small companies don't have the layers of Y2K complexity that face larger corporations, but they also lack the resources and expertise to handle the millennium problem. "I've been wearing a lot of hats, doing everyday business and trying to deal with the issue," Gardner says. "It would have been helpful if we'd had some resources or even some ideas from larger companies."

Gardner's not talking about hands-on assistance; he says basic information, like access to Y2K seminars or databases of software or hardware compliance, would have been very helpful. But none of his large customers offered.

The few companies that have helped their suppliers are quick to acknowledge that they're motivated more by self-preservation than altruism. That points to a basic fallacy in many supply-chain contingency plans: "People can say they're going to re-source suppliers, but in the real world, it doesn't happen," says Cindy Sim, year 2000 project manager of supply management at Deere & Co., a maker of agricultural and industrial equipment in Moline, Ill. "Nine out of 10 times, it's not possible. . . . The glib people who say they'll just find another source are not in the real world of supply management."

Sharing the 'A-ha!'

Changing suppliers is the last thing Colgate-Palmolive Co. wants, so the New York-based consumer products manufacturer has been willing to help when its smaller suppliers have needed it.

For example, in the early days of year 2000 remediation, a lot of suppliers didn't know how to assess embedded systems and plant equipment, says Jan Polish, associate director for Y2K compliance at Colgate. Because the company had gone through an internal audit of those items, it shared the methodology. "We went to plants, walked through with their engineers and said, 'Did you check this? Did you check that?' And they'd say, 'A-ha!' " she recalls.

Colgate also clued in its less-knowledgeable suppliers on the seemingly extraneous things that need to be under the Y2K tent. "We'd say, 'Did you check the fire alarm system? How about security?' And they'd say, 'Ahhh — that's a good idea!' And we'd say, 'Did you think . . . that sometimes an embedded chip has a maintenance date, even though it doesn't have a working date?' " Polish says.

"Some of those questions set off lightbulbs in our smaller companies," she adds. Not only have the suppliers appreciated the help, but some have passed it along to their suppliers, she says.

Polish says Colgate's suppliers tell her that no one else is providing that level of assistance, with one exception: the auto industry.

Starting Their Engines

General Motors Corp., Ford Motor Co. and DaimlerChrysler (joined later by other major automakers) have been working on year 2000 supply-chain issues since 1997 through the Automotive Industry Action Group (AIAG). It began with the now-famous, 120-question Y2K self-assessment that ultimately went to 120,000 suppliers around the world, says Fred Craig, year 2000 program manager at the AIAG. "That [assessment] continues to be updated so we know how people are doing at any given time," he says.

As part of the program, the AIAG has established a supplier information center that offers a help desk and databases on tips, techniques, lessons learned and the compliance of plant equipment.

The AIAG also offers classes for auto suppliers on Y2K project management and assessing both their own and their suppliers' compliance.

The group recently began offering consulting assistance, financed by the automakers. If a supplier is behind on its year 2000 work, its customer can offer to send AIAG-trained consultants to work with the supplier to restart that supplier's Y2K engines. "It's only [when] the supplier agrees. They're still responsible for their own remediation," Craig says.

The result is that "probably less than 30 companies globally" still need help, Craig says — and even those auto suppliers aren't expected to fail. "They're just getting special attention," he says.

One-On-One Attention

Although the AIAG is concentrating on top-tier automotive suppliers that deal directly with automakers, the lower tiers, which supply the suppliers — and are usually much smaller companies — are often left on their own to prepare for Y2K.

Illinois Machine & Tool Works LLC, a machine metal-parts maker in North Pekin, Ill., with 130 employees, doesn't have access to Y2K resources like those that deal directly with the Big Three automakers. But it has had offers of help from one big customer: Deere has invited Illinois Machine controller Duane Baker to attend its Y2K seminars.

Of Deere's 2,600 mission-critical suppliers worldwide, many are small and midsize businesses, says Steve Jost, Y2K project manager. Deere has been holding year 2000-supplier seminars throughout the U.S. and Europe for several years, advising attendees on issues and helping them evaluate their risks of Y2K failure. "If they had a bad scorecard, we tried to go back and work with them to show where they need improvement," Jost says. He says Deere also encourages suppliers to have third-party readiness assessments and has participated in creating some of them.

The company also has been working with suppliers to test their ability to run electronic data interchange procurement transactions. A lot of the tests failed initially, Jost says, but by the second or third time around, the suppliers have been on track.

Beyond that, one buyer at Deere is responsible for the ongoing Y2K relationship with each supplier, Sim explains. After it searches for information among periodicals, industry groups, consultants and through Web surfing, Deere's Y2K supply management organization funnels it to suppliers through their lead buyers. "We have armed our buyers with information to assist the supplier, and templates to help them manage their project and now their contingency plan," Sim says. "These are just suggestions. We're trying to share information."

Deere is adamant about one matter: It wants to bring all its suppliers into the new millennium with it. "It takes years to establish these good relationships with suppliers," Jost says, "and we're doing everything we can to maintain them."

Resources for Small Businesses

Although lots of small companies are behind on their Y2K work, there are lots of free resources out there to help them catch up. Here are a few:

Y2K HELP CENTER FOR SMALL BUSINESS

(800) Y2K-5775
E-mail: y2khelp@nist.gov

- Downloadable National Institute of Standards and Technologies (NIST) Jumpstart Kit includes self-help tools, a user's guide, quick-start guide and compliance self-assessment checklist.
- A resource page addresses each phase of a Y2K project, from assessment to clean code management. Includes many links to tool vendors to help with each phase.
- Links to Y2K compliance information include the Web sites of equipment manufacturers and software vendors, phone numbers and databases with compliance information on products.
- Information on local year 2000 workshops on planning, assessment, computer systems and embedded systems.

SMALL BUSINESS ADMINISTRATION (SBA)

www.sba.gov/y2k

- Webcast of a miniconference with major software vendors offering recommendations for specific activities to help small businesses prepare.
- Information on SBA Y2K Action Loans for remediation.
- Information on SBA's Y2K training.
- Three downloadable PowerPoint seminars: "Y2K Overview," "PC Readiness" and "Supply Chain Readiness."
- Information on "matchmaker fairs" that bring Y2K product/service providers and small business owners together.
- NIST Jumpstart Kit.

Y2K SPECIALIST

www.y2kspecialist.com

- Links to virtually every major hardware and software maker's Y2K Web pages.

GORDON & GLICKSON LLC

www.ggtech.com/y2kmain.html

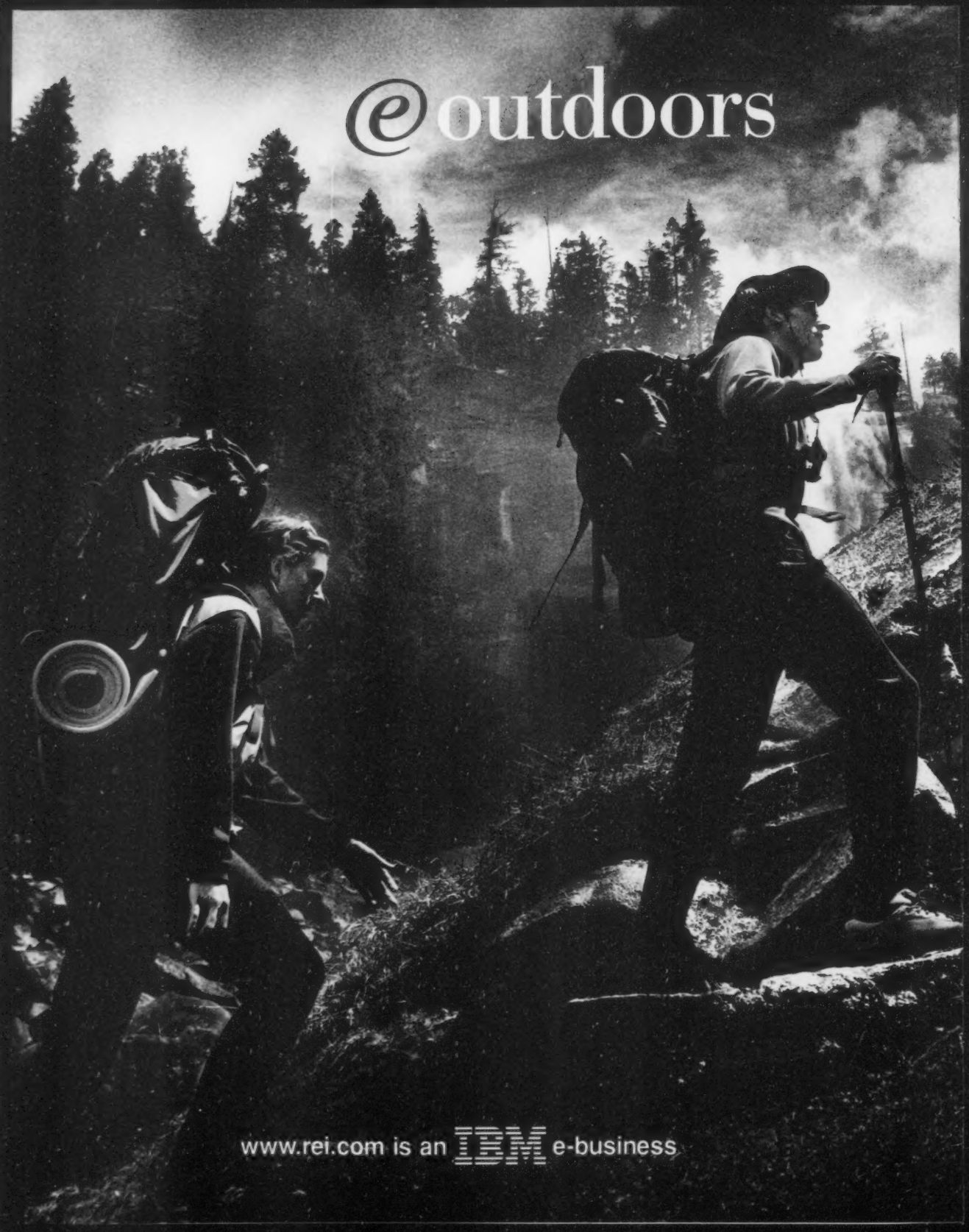
- Links to Y2K checklists, compliance databases and surveys.
- Advice and guidelines on accounting and auditing issues, contingency planning and testing.
- Industry-specific information, surveys, Web sites, local and regional user groups and government-sponsored best practices.

NATIONAL FEDERATION OF INDEPENDENT BUSINESS

www.nfibonline.com

- Free "Countdown to 2000" booklet.
- Links to hardware and software makers and other sources of Y2K information.

MOREONLINE For more on this story, visit our Web site: **www.computerworld.com/more**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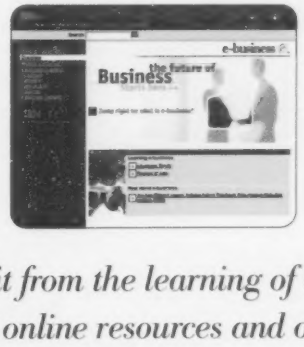
IBM e-commerce software powers the REI online store – and sales that exceed projections by over 360%. Can IBM e-commerce software help you?

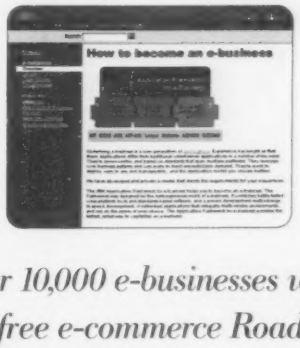
IBM software is helping thousands of companies build, run and manage powerful interactive e-commerce Web sites. For REI, that means everything from state-of-the-wilderness gear you can buy to clinics on outdoor skills, enthusiast bulletin boards and a world of trips and tours. The scope of REI's offerings led them to IBM.

IBM software provides the building blocks for all facets of e-business, including secure payments, electronic catalogs, and order processing. For REI, proven products, such as Net.Commerce, DB2® Universal Database™ and IBM Firewall deliver the scalability, reliability and security it takes to reach, sell and service a growing community of outdoor enthusiasts.

The results have been nothing less than astonishing. In the first quarter alone, REI's sites generated online sales that exceeded projections by over 360%. And these e-sales are 4 times the size of those in their brick-and-mortar counterparts. Bottom line, REI is growing profits far beyond its wildest expectations.

REI is just one example of the thousands of e-commerce businesses IBM software has helped build and grow. From Web storefronts to integrating your business systems and supply chains, IBM offers a breadth of software products simply unmatched by anyone. All backed by the know-how and support of IBM and its Business Partners.





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RECRUITING BACK TO IRELAND

Faced with growing staff demands and its own skills shortage, America's No. 2 source of H-1B professionals wants its IT pros to come home again

BY LESLIE GOFF

AFTER 15 YEARS in New York, James Caball is looking to go home. Home is County Kerry, a particularly picturesque region of Ireland that's simultaneously wild and serene. His career as an information technology professional is his ticket there.

"I never intended to be a lifer here. I didn't expect to be here 15 years," says Caball, who immigrated to the Big Apple from the Emerald Isle in 1984.

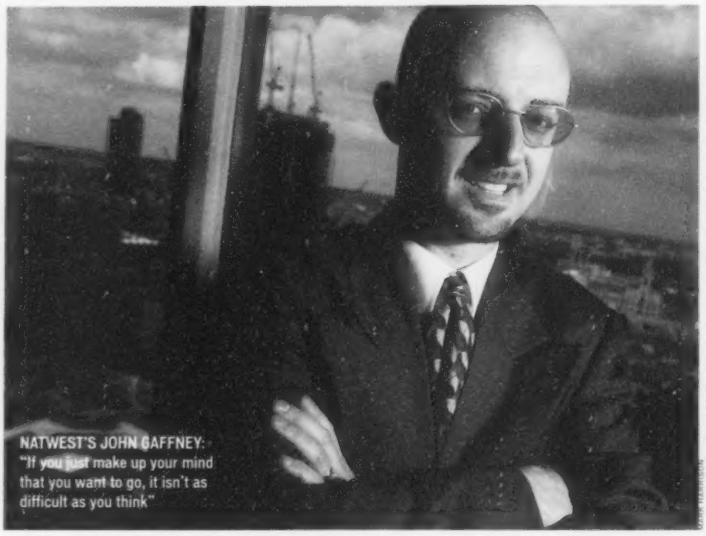
But life happens, as they say. Caball started an Irish imports business upon arriving in the U.S., met his future spouse and started a family. With an eye on returning to his homeland, he sold his business to go back to school for an IT degree.

"An import business is very difficult to take back to Ireland if you're importing Irish products," explains Caball, now a systems analyst at The Chase Manhattan Bank in Brooklyn, N.Y. "I felt IT was a transportable skill and in demand. High-tech was starting to emerge as a big market in Ireland, and it was a skill that I could take anywhere."

That skill certainly *is* in high demand in Ireland. In the 15 years since Caball left, IT companies have invaded Ireland with the same tenacity as the Vikings more than 1,000 years ago. Since the unification of Europe, Ireland has become one of the European Union's economic leaders, earning the moniker "Celtic Tiger."

The Irish government spent much of the 1980s and '90s aggressively recruiting U.S. high-tech companies to its shores, as well as establishing indigenous technology businesses. Now Ireland is encouraging folks like Caball to return home to fill all those new jobs. Nowhere is the talent pool more enticing than in the U.S., to which numerous Irish citizens immigrated in the 1980s. In 1988 and '89 alone, 131,000 Irish moved stateside.

"There are 47 million Irish ... in the U.S., but we don't want them all back," quips Roy Hanan, a partner at PricewaterhouseCoopers' management consulting office in Dublin. Hanan, who recruited SAP and Oracle professionals at the Irish High Tech Career Fair and Expo held in New York and Boston last month, says he would like at least 20 to return in the next eight months.



NATWEST'S JOHN GAFFNEY: "If you just make up your mind that you want to go, it isn't as difficult as you think"

About 2,500 IT professionals — many of them native Irish and Irish-Americans — attended the events, according to the sponsor, IT Staffing Ltd. in Toronto and Waltham, Mass.

IT Creating Openings

The job fair was designed to promote the vast number of IT-related job opportunities awaiting Irish nationals and others willing to relocate. More than 20 companies, including PricewaterhouseCoopers, NatWest Bank and Hewlett-Packard Co., sent representatives in an attempt to balance the IT skills gap that has emerged as Ireland's economy has boomed.

Unemployment in Ireland is a mere 6.4%. That's the lowest it's been since 1921, when the Republic of Ireland became an independent nation, and considerably below the European average of 10.4%. The number of private-sector jobs has grown by 20%, or 142,000 positions, in the past three years, according to Opportunity Ireland, a program of the National Software Directorate (NSD) in Dublin, a government agency that has helped to direct the growth.

The boom has been largely driven by the software industry, which saw jobs increase by 55% between 1995 and 1997, according to the NSD.

Opportunity Ireland officials say they expect software companies to create 3,000 new jobs in the next three years and electronics companies to add 2,000 positions in the next two years.

The Economist in London has called Ireland "the back office of Europe," recognizing it as the top European location for call centers engaged in telemarketing, customer service and technical support.

More than 60 major companies have located call centers there, according to the book *Working and Living in Ireland* (1999, Oak Tree Press, Dublin), by Eugenie Houston, a former human resources executive.

Irish recruiters are starting to look outside the country for talent, turning to Web sites like Top Jobs on the Net and Opportunity Ireland to post openings for systems analysts, Java programmers, webmasters, application developers, help desk managers, software testers and software engineers. Recruiters have also used Web sites to search for business analysts in all technology areas, including C, C++, Visual Basic, Delphi, RPG 400, Windows NT, Unix, Cobol, Oracle and SAP.

The plethora of IT jobs is helping to turn the tide of emigration from Ireland. In the past two years, 11,500 people moved from the U.S. to Ireland, while only 8,400 moved from there to here. Shay Clancy, a recruiter at IT Staffing, says 44,000 people immigrated to Ireland last year; 57% were returning Irish nationals, the balance of them Europeans and Americans.

Moving Back Can Be Easy

If the proverbial luck of the Irish holds out for Caball, he will be among those following in the footsteps of IT professionals like John Gaffney, who moved back to Ireland last year after 11 years in the Midwest.

Gaffney, a team leader for mainframe development at NatWest's retail information systems group in Dublin, immigrated to Columbus, Ohio, in 1987.

He worked for General Electric Co. and attended Ohio State University part time to earn an IT degree. Upon graduation, he took a job at Electronic Data Systems Corp. in Detroit. But by the time his daughter was 4 years old, he says he longed to return to Ireland.

The Gaffneys left Detroit in July 1998. He signed with a recruiting agency two weeks after relocating and says he garnered two interviews right away. The second, with NatWest, was a winner. Within two weeks, Gaffney says, he was on the job.

"Given the quality of life and the standard of living, I haven't sacrificed a great deal," he says. "If you just make up your mind that you want to go, it isn't as difficult as you think."

Goff is a freelance writer in New York. Contact her at lgoff@ix.netcom.com.

ANNE McCRORY/JARGON JUDGE

How can 'viral' mean something good?

YOU PROBABLY THOUGHT the same thing I did the first time I heard the term "viral" Web site — infected! As in, it somehow must be carrying a computer virus that would insidiously permeate your firewall and leave you open to intruders, theft and damage.

Wrong.

Viral — get this — actually refers to a site or other type of technology that's first to market and catches on exponentially.

Say what?

Yes, once again the technology pundits are one step ahead of the rest of us, and it's one step too far.

The last time I checked, viral (and its noun, virus) wasn't a word that had a whole lot going for it, public relations-wise. Medically, it's a foreign being that invades your system (body), and it's impervious to medication. Computer-wise, it's a piece of code that invades your systems, then replicates and makes your machines do pesky or evil things, like destroy data on certain dates. Now this is the word we're supposed to associate with madly popular programs?

Two Examples

To prove it was so, one source who briefed me on this perplexing 180-degree shift gave me two examples of the viral phenomenon: Microsoft's Hotmail and America Online's Instant Messenger. Both products — the world's first free e-mail and free real-time chat client, respectively — were launched with little fanfare. Yet, in a matter of months, they had drawn huge followings. Word of mouth about innovative and free Internet-based services meant their growth took off like — a virus. And then so-called viral Web sites were born.

But if it's growth they wanted to convey, surely the pundits could have done better. Why, just look at some equally apropos metaphors I have dreamed up — even without Mountain Dew or cold pizza to sustain me:

■ Weeds. They spring up all over without much cultivation, in a fashion not altogether unlike that irritating Instant Messenger window, which pops up and freezes your keyboard only when you're in the middle of typing a hugely important sentence.

■ Seeds. From flowers, trees and dandelions alike, they're surreptitiously carried by the wind to parts near and far, as is word of splendid new sites.

■ Snowballs. Whether as a verb (snowball), an adverb (snowballing) or a modifier (snowball effect), this term is already a fit: It starts with a core whose mass grows ever larger, layers at a time.

■ New, hot, popular, nascent, clever, up-and-coming, hot emerging, business-smart, brand-building, market-leading, niche-creating, Net-able, Net-icent. You-name-it, there are plenty of words in the English language for this concept already.

So let's wipe out viral in this Web context. There's no need to give it yet another meaning or to use yet another term to confuse just about everybody else. ◗

Does any high-tech jargon leave you steamed? Or smiling? Tell ANNE MCCRORY, former *Computerworld* copy desk chief and now assistant business editor. Contact her at anne_mccrory@computerworld.com.

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CONFERENCES

DECISION PROCESSING '99 CONFERENCE
■ Fairmont Hotel, San Jose; Aug. 2-4
■ The latest applications in the data warehousing industry.
■ Cost: $1,095 to $1,595 (less for members of the International Data Warehouse Association). Contact: Digital Consulting Inc. in Andover, Mass., at (978) 470-3880; fax: (978) 470-0526; e-mail: ConfReg@dci.com.
www.dci.com

NATIONAL CONFERENCE OF BDPA (BLACK DATA PROCESSING ASSOCIATES) THOUGHT LEADERS
■ Hyatt Regency Atlanta; Aug. 17-22
■ A select group of IT managers will discuss issues that are germane to African-American IT leaders and managers.
■ Cost: $500 for members, $600 for nonmembers. Contact: BDPA in Landover, Md., at (800) 727-2372; fax: (301) 429-2710.
www.bdpa.org

INTERNET ASP FORUM '99
■ Moscone Center, San Francisco; Aug. 17-18
■ For companies considering buying or renting shared applications over the Internet through application service providers.
■ Cost: $595. Contact: Ambit International in San Francisco at (800) 300-5660 or (415) 674-4244; fax: (415) 674-4498.
www.ambitsf.com

1999 AMERICAN PRODUCTIVITY AND QUALITY CENTER (APQC) CONFERENCE
■ San Francisco Marriott; Aug. 23-27
■ Chief focus is on attracting and retaining customers. Three tracks on product development, leadership and customer focus.
■ Cost: $845 to $995 (additional for workshops and training). Contact: Nadine Mickey at APQC in Houston at (800) 776-9676 or (713) 681-4020; fax: (713) 681-3705; e-mail: nmickey@apqc.org.
www.apqc.org/events/sf

CAUCUS '99
■ Park Hyatt, Washington; Aug. 30-Sept. 1
■ The annual conference for high-tech acquisition professionals, it will feature the latest in the world of buying IT products and services. Learn about new issues and how to deal with technology suppliers.
■ Cost: $995 to $1,295. Contact: International Computer Negotiations in Winter Park, Fla., at (407) 740-0700; fax: (407) 740-0368.
www.caucusnet.com

THE '99 SOFTWARE ENGINEERING SYMPOSIUM
■ Lawrence Convention Center, Pittsburgh; Aug. 30-Sept. 2
■ An update on and discussion of software engineering practices, sponsored by the Software Engineering Institute (SEI).
■ Cost: $545 by July 28; $645 from July 29 to Aug. 18; $745 after Aug. 18. Contact: SEI in Pittsburgh at (412) 268-7388; fax: (412) 268-7401; e-mail: registration@sei.cmu.edu.
www.sei.cmu.edu

THE AMR RESEARCH STRATEGIC MANUFACTURING & AUTOMATION CONFERENCE
■ Westin William Penn, Pittsburgh; Sept. 8-9
■ Focus on planning and execution of multisite plant rollouts. Issues include application selection and assembly, software upgrade strategies and global implementation.
■ Cost: $1,295 to $1,495. Contact: AMR Research Inc. in Boston at (617) 542-6600; fax: (617) 542-5670.
www.amrresearch.com/conferences

NETWORLD/INTEROP
■ Georgia World Congress Center, Atlanta; Sept. 13-17
■ The key event for those whose interests lie in network infrastructure. Explores using existing technologies to move into e-commerce.
■ Cost: $1,095; $1,295 after Aug. 13 (more for tutorials and workshops). Contact: NetWorld/Interop '99 in Needham, Mass., at (888) 886-4057; fax: (781) 449-2674.
www.interop.com/Atlanta

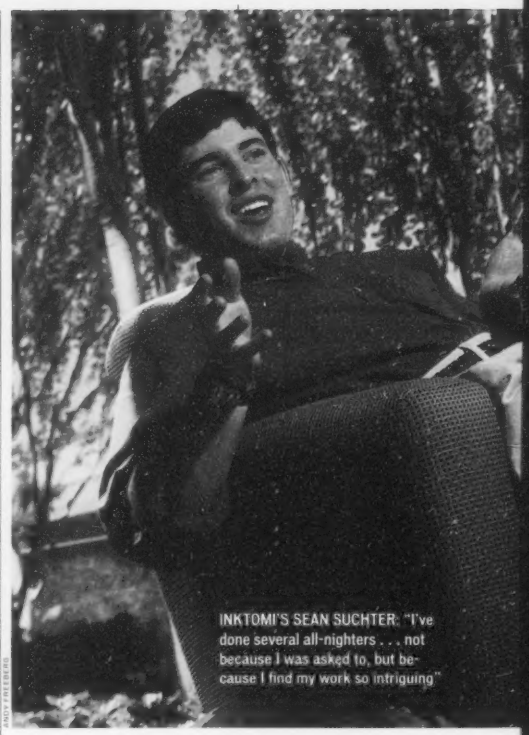
1999 GARTNER GROUP CRM SUMMIT
■ Chicago Marriott Downtown; Sept. 15-17
■ Focuses on exploiting IT to build stronger marketing, sales and customer service capabilities.
■ Cost: $1,395 to $1,595. Contact: Gartner Group Inc. in Stamford, Conn., at (800) 778-1997 or (203) 316-6757; fax: (203) 316-6774.
www.gartner.com

SECURE NETWORKS FOR THE CONNECTED ENTERPRISE
■ Fairmont Hotel, San Francisco; Sept. 26-28
■ Extranet and e-commerce security and communications issues.
■ Cost: $1,395. Contact: Giga Information Group in Norwell, Mass., at (781) 792-2669; fax: (781) 871-4871; e-mail: conferences@gigaweb.com.
www.gigaweb.com

Y2K ZERO-DAY STRATEGIES & BEYOND
■ Doubletree Paradise Valley Resort, Scottsdale, Ariz.; Sept. 27-28
■ What you need to know – and do – in the final three months before the millennium rollover.
■ Cost: $1,595 (more for workshops). Contact: International Quality & Productivity Center in Little Falls, N.J., at (800) 882-8684 or (973) 256-0211; fax: (973) 256-0205; e-mail: info@iqpc.com.
www.iqpc.com

VENDOR VENTURES

Considering a job with a technology vendor? Many offer high pay and great challenges. But the cultures aren't for everyone By Rochelle Garner



INKTOMI'S SEAN SUCHTER: "I've done several all-nighters . . . not because I was asked to, but because I find my work so intriguing"

ANDY BATSEL

WHEN it comes to images of the IT workplace, vendor companies always seem to get the glory. But information technology professionals pondering a job change might wonder what it's actually like to work at these places. Everyone knows they expect long hours. But do they chew up staff and spit them out like toothpicks? Or do they offer an atmosphere so exciting that you can't wait to go to work in the morning?

The answer often depends on the workplace culture, because it's culture that determines the behavior of the people you work with — and it affects your life far more deeply than a shiny new BMW can.

Here's a look at the workplace cultures of four vendors competing in four of today's hottest technology segments. Who knows? One might be just what the career doctor ordered for you.

Inktomi Corp.

San Mateo, Calif.

Inktomi's 400-person workforce boasts so many graduate degrees that it almost feels like a university. Contributing to that feeling: Inktomi is staffed primarily by twentysomethings prone to erupt in spontaneous (and legendary) water battles.

You may not have heard of Inktomi Corp., but the San Mateo, Calif., company works on projects as big as the Internet itself. Literally.

The reason: All of Inktomi's products — its search engine, Internet-caching, comparison-shopping and concept-matching software — are based on homegrown technology that essentially strings together inexpensive workstations to form a true massively parallel processing system. Keeping up with the Internet is a simple matter of adding more processors. The technology behind it, though, is complex.

"What Inktomi delivers is very rocket-scientific," says Kris Tuttle, an analyst at Soundview Technology Group Inc. in Stamford, Conn. "Your average smart-guy programmer won't be able to do this."

But life at Inktomi isn't all nose-to-the-grindstone. The employees there know how to have fun, too.

One mark of Inktomi's work hard/play hard culture: An informal confab, dubbed "Year of Pain," which promotes rock climbs, endurance bike rides, outdoor ropes courses and other high-energy doings. Whatever the activity, the goal is to provide employees with an outlet to relieve the stress of days and nights in front of their computer monitors.

"I've done several all-nighters since graduating last year from Cal Tech — not because I was asked to, but because I find my work so intriguing," says Sean Suchter, a software developer and scientist in Inktomi's directory engine group. Suchter estimates he puts in an average of 60 to 70 hours per week.

Blame it on the enthusiasm of youth, which prompts many of Inktomi's staff to lose sight of the hours as releases approach. And given the product cycles of software these days, it seems there's *always* a new release.

"As a manager, I try to keep people from doing those all-nighters because we want to keep them from burning out,"

says Matthew Hall, 43, who is Suchter's manager. "We are in this for the long haul, and want to keep people fresh and productive. More often than not, I tell people to take time off."

But Inktomi's culture isn't just one of hard work and hard play. The company also has an unspoken, but inviolate, code of behavior. "We have zero tolerance for prima donnas," Hall says.

So what type personality fits in at Inktomi? Someone who's drawn to solving The Big Question, according to Suchter and Hall, because of the breadth of Inktomi's products.

And most important is someone who has accomplished big things, but doesn't have a swelled head.

"We have an almost complete lack of political intrigue, since no one talks about who screwed up or who can't handle a task. You have no idea what that means in your life — not worrying about how others perceive you or having to watch your back," Hall says.

Unless another water battle is brewing, of course.

Trilogy Software Inc.

Austin, Texas

Trilogy wants young, talented overachievers with entrepreneurial ambition. And oh yes, it also wants people who will willingly dedicate their lives to make the company succeed. Only the vigorous need apply.

It's quite possible that no one works as hard as the staff at Trilogy Software Inc. Forget about 60-hour weeks. The 1,000 employees at Trilogy — which now competes in one of the most hotly contested spaces in the e-commerce market — often put in 100 hours per week. Frankly, it's the sort of schedule that requires the stamina of youth.

That's one reason the developer of sales, marketing and other front-office software actively recruits most of its high-octane staff from the nation's top universities. And the emphasis is on *high-octane.*

"It's awesome working here," says four-year veteran Danielle Rios, 28, her enthusiasm coming through at 45 rpm. "Everyone's excited here, everyone feels we're contributing to the company's success, and everyone wants to spend time together."

At this Austin, Texas, firm, life is Trilogy and Trilogy is life. "My family thinks I'm psycho since my life is integrated with work. I live and breathe Trilogy, all my friends are here, and I don't care," Rios says.

It all starts with Trilogy University, the three-month boot camp that all new hires attend. During those three months, people work together, eat together and bond. And as they bond, these overachievers begin to compete for the company's highest accolades.

"You don't get rewarded here for trying hard, but for producing results," says Rios, who was recently promoted from software developer to director of Trilogy University. "Everyone wants to be considered a star or a superstar."

And it's no wonder: Star status brings extraordinary rewards, from cars to trips to cash bonuses that can equal one's annual salary. Rios was declared a star in 1998, for which she earned ... nothing. Blame it on bad timing. That was the year the *entire* company went to Hawaii.

The benefits at Trilogy are extraordinary, but so are the demands.

Vignette Corp.

Austin, Texas

Where its Austin neighbor, Trilogy, seeks out college grads willing to devote themselves to all things corporate, Vignette Corp. deliberately goes after an older, more experienced crew.

Two words describe life at Vignette: *funky* and *intense.*

"Funky, because anything goes around here," says Mike Strong, a senior software engineer at the Austin developer of content-management software for the Web. "We have people with rings in every possible part of their body, we have square-looking people and people in between. But there's a real sense that it doesn't matter at all. Our culture isn't one big testosterone fix where everyone likes the same rock band or the same sport."

But don't get the impression that life at Vignette is as slow as a Texas drawl. The pace of work at this 250-person company can be nearly as frenetic as it is at Trilogy.

"We look for people who are confident, articulate, mature — and who aren't bozos," says Kenneth Hilbig, Vignette's director of human resources. "A bozo is someone who can't deliver what they've promised or who built themselves up to be more than they are or who can't handle the atmosphere of intensity and accountability here. People here are always held accountable. Bozos are tolerated by no one."

The result is an atmosphere that appeals to those who aren't, well, bozos.

"What I like here is it has all the vitality of a start-up, but the ambient maturity level is an order of magnitude higher than at other technology companies," Strong says.

"There's a lot of zeal, enthusiasm and energy, but there's also wisdom," he explains. "It takes the negative edge off the intensity without losing the edge."

Vignette also encourages its staff to spend evenings at home — even if some of those hours are in front of the home computer. "I tend to work 10- to 14-hour days, but some of those hours I may be hugging my kids and giving them noogies," Strong says. "We are here to win, but we found a place where we can do that and have our families, too."

Vignette's employees say being able to telecommute really appeals to them. But so do other Vignette touches. Its office space, for example, was designed to invite smiles with spacey-looking furniture and brightly colored walls that thrust out at odd angles. Spouses are sent flowers to thank them for being understanding during particularly frantic periods. And every Friday, Vignette hosts beer busts and yoga classes, providing a weird buffet of techniques for unwinding.

Perhaps most important to those who work there is that the company treats people with respect.

"Unlike a lot of technology companies, there's none of the haves and have-nots, with engineers putting themselves above IS," says Charles Hajovsky, an application developer in Vignette's IT group. "We're all working for a common goal, and that goal is the company's success. But I'm not working for the president to get a new yacht. I'm working for me to get a new yacht."

J. D. Edwards & Co.

Denver

This is a culture that esteems a code of conduct that seems almost old-fashioned – a legacy of co-founder and CEO Ed McVaney.

After 22 years in business, J. D. Edwards & Co. has surprised the world by becoming one of the leading makers of enterprise resource planning (ERP) software. The Denver company employs nearly 5,000 people dedicated to the development and sales of systems that require more than 1 million lines of code. Think "big" when you think of J. D. Edwards.

Despite its size, J. D. Edwards isn't a place to coast. The ERP market is fiercely competitive even though it's currently in the doldrums. But don't expect the same hard edge at J. D. Edwards as at younger companies.

For proof, look to the company's "Culture" document, originally drafted by McVaney and handed out to each employee. It contains headings such as "Impeccable character," "Tolerance and forgiveness" and "Office politics."

The exhortations are specific. Under that last heading, for example, it explicitly states that "backbiting, manipulating ... and other divisive activities are causes for termination." Like all strong cultures, people have to buy the vision to fit in.

So who fits in at J. D. Edwards and who doesn't? "The personalities that do not do well are those with large egos," says Kurt Kellner, a technical architect in the company's kernel team. "If someone tries to act like a know-it-all, they get shot down pretty quickly."

People who do jibe well are those "with a driving desire to be up-to-date with technologies," Kellner says. "This place is a challenge, constantly keeping me engaged. If you don't have that interest, you're probably better off some place else."

Garner is a freelance writer in San Carlos, Calif.

Net Present Value

BY JACQUELINE EMIGH

DEFINITION

What it is: Net present value (NPV) is used to evaluate return from internal investments such as IT projects or external investments such as mergers.

Why you need to know it: NPV can help your IT department win internal investment dollars by showing the finance department that investing in a Web server, for example, will yield a high return.

UNDERSTANDING net present value (NPV) can increase an information technology manager's chances of getting the OK from corporate finance for IT expenditures.

Basically, NPV represents the relationship between a project's expected cash flow and the cost of capital. "In simplest terms, cost of capital is what you have to pay or give up for the money you need for operating the business — for buying new computers and other assets," explains Susan Koski-Grafer, a vice president at the Financial Executives Institute in Morristown, N.J.

Knowing how to calculate NPV and cost of capital can get you a leg up over other internal departments vying for the same funding dollars, says Alan J. Schneider, treasurer at Chicago-based Wm. Wrigley Co.

Evaluating Investments

NPV and cost of capital can help assess potential external investments, like stock purchases or corporate acquisitions. But organizations are also using these equations (see chart) to evaluate investments in internal projects. Those projects can range from building a new manufacturing plant to replacing an aging mainframe with a Web-based system.

The cost of capital is generally measured as weighted average cost of capital (WACC). WACC is the cost of debt, such as interest on a loan, and the cost of equity investment, or rate of return. For internal investments, though, cost of debt typically doesn't come into play.

One example of rate of return is the interest on a bank savings account. If your bank's annual interest rate is 4%, your rate of return on the money you've invested is also 4%.

In many organizations today, a project must meet a "hurdle," or minimum requirement for rate of return, before it can be considered for internal funding. The hurdle is used to help calculate NPV. If the project meets the organization's hurdle, NPV will be a positive number. Conversely, if the project hasn't met the hurdle, NPV will be a negative number.

The higher the rate of return, the greater the chances the project will obtain the stamp of approval.

Let's say that an organization's hurdle is 12%, for example. If a proposal submitted by IT yields a 16% rate of return, while a competing department's proposal brings a 14% rate of return, the IT department will get the edge thanks to its higher NPV.

There are other factors to consider as well. IT projects deliver intangible benefits that can't be quantified using mathematical equations like NPV, such as better information access, workflow and customer satisfaction.

Intangible Benefits

Haim Mendelson, James Irvin Miller Professor of Information Systems at Stanford University in Stanford, Calif., recommends talking about intangible benefits as well as quantifiable NPV results in proposals to the finance department. "Some of the most convincing arguments are that the project will bring strategic benefits or a business restructuring," he says.

Organizations vary, too, in terms of who calculates NPV and cost of capital. At Bentley College in Waltham, Mass., for instance, the finance department does that job. "But I certainly get a lot of input from my IT people," says Joanne Yestramski, the college's vice president of business and finance. Bentley has used these calculations to make computer lease-or-buy decisions, as well as to predict return on investment from network upgrades to a new, $20 million building called the Smith Technology Center that's slated to open in the fall of 2000.

IT and Finance

Even at organizations in which the finance department does all the math, it's important for IT managers to comprehend NPV and cost of capital.

"There's going to be a discussion anyway, and you will have to justify the project. IT managers are in a much better position if they know a project has already passed the hurdle based on its quantifiable benefits," Mendelson says.

"Partnering between IT and finance is critical," according to Ron Brezinski, principal at Wilmette, Ill.-based Transformation Associates. "Finance can help IT to either look good or look bad. By speaking the same language as finance, IT managers show that they're playing on the same team, instead of sitting on the sidelines as outsiders."

Emigh is a freelance writer in Boston.

Elements of NPV

Stanford University's Prof. Haim Mendelson offers this example:

Suppose that an organization is considering buying a new CAD/CAM system that it projects will increase the productivity of its 75 engineers by 5%. The value of an engineer is $150 per hour. The system start-up cost is $2 million for equipment and installation. After that, the organization will pay $400,000 per year for maintenance.

1. **Risk-free rate (Rf):** The expected rate of return on a risk-free investment (for example, the 4% interest rate on a U.S. Treasury bill)
2. **Systematic risk coefficient (β):** A measure of the volatility of a company, based on historical earnings data or stock prices
3. **Risk premium:** The payment premium an organization or a market requires to compensate for risk
4. **Benefit:** 200 hours x 75 engineers x $150 hourly charge x 5% productivity gain = $1.125M

ASSUMPTIONS	
COST OF CAPITAL	
1 Risk-free rate (Rf)	4%
2 Systematic risk coefficient (β)	1.8 (high risk)
3 Risk premium	8.5%
Cost of capital = 4% + (1.8% x 8.5%)	19.3%

CASH FLOWS					
Year	4 Benefit		Cost		Net Cash Flow
0		-	$2.4M	=	-$1.275M
1-3	$1.125M	-	$0.4M	=	$0.725M

NET PRESENT VALUE

$$NPV = C_{f_0} + \frac{C_{f_1}}{(1+R)} + \frac{C_{f_2}}{(1+R)^2} + \frac{C_{f_3}}{(1+R)^3} \cdots$$

C_f = Cash flow in year n; R = Cost of capital (required rate of return)

$$NPV = -\$1.275M + \frac{\$0.725M}{(1+19.3\%)} + \frac{\$0.725M}{(1+19.3\%)^2} + \frac{\$0.725M}{(1+19.3\%)^3} = \$0.27M$$

- If the system lifetime is four years, the organization should undertake the project, because the NPV is $0.27M.
- If the system lifetime is only three years, the project shouldn't be undertaken because the NPV is -$0.16M.
- The organization should also forgo the system if it will reduce engineers' productivity by 5% during the first half of the first year rather than increase it. In that case, NPV would also be a negative number.

MOREONLINE

For more information on NPV and cost of capital, visit our Web site.
www.computerworld.com/more

Are there business terms you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.

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Dear Career Adviser:

I'm a 40-year-old, midlevel manager of application development at an enterprise resource planning (ERP) vendor. My background is in hardware and software development, with the past 12 years focused on software.

I have been managing a development organization of about 20 engineers developing object-oriented client/server applications.

My current company offers scant opportunities for advancement and few projects in e-commerce and e-business. I will complete my Microsoft Certified Professional (MCP)/Site Builder certification in about three months. How can I position myself to move forward in a company focusing on e-business, as a director or senior manager, without taking a step backward? Am I dreaming, or can I proceed? — DREAMING

Dear Dreaming:

"Stop dreaming and start looking. Your skills and experience with ERP should bring rich rewards," advises Computer Sciences Corp. Consulting Group partner Jim Ettwein.

Investigate SAP AG, Baan Co., Oracle Corp. and PeopleSoft Inc., or e-commerce software vendors like Open Market Inc., BroadVision Inc. and Vignette Corp.

Visit their Web sites and trade-show booths, and download and read their white papers on e-commerce.

Be sure to try out all kinds of Web commerce to make sure you know how it works. Check out successful e-commerce sites like Amazon.com and Schwab.com.

Ettwein notes that more solution builders exist than do solution architects. If you're a developer, concentrate on C, C++, Unix, Windows NT, Common Gateway Interface scripts and Java. And for a director or senior manager role, MCP/Site Builder probably has less value. With those current skills, he says, Dreaming might become a project manager, or with marketing experience move into marketing and product management.

While a track record is important, the dearth of talent means that years of experience is no longer the overriding concern.

"Get good, solid experience under your belt," Ettwein says. "There are many mediocre folks in e-commerce plying their skills until discovered, and then they move on to the next start-up."

Dear Career Adviser:

I've been a Unix systems administrator for eight years and am interviewing for a new job in Washington. Should I reveal that I filed for bankruptcy three years ago in Massachusetts? Now my credit record is clean, but I am worried that if a new employer finds out I filed for bankruptcy, I won't receive an offer. — WORRIED IN WORCESTER

Dear Worried:

According to Avert Inc., an Internet-based, pre-employment screening company, employers may inquire into your background as part of the hiring process. That includes investigating your credit history, criminal convictions, personal and business references and education credentials, but only if they have a legitimate business need for that information. If they use a consumer-reporting agency, they must tell you and obtain your permission before performing those inquiries. If the information they obtain may have an adverse impact, you must receive a summary of your rights under the Fair Credit Reporting Act, a copy of the information obtained and the source of the information.

Section 525 of the U.S. Bankruptcy Code provides that employers may not discriminate in employment against someone who has filed for bankruptcy, is doing so or intends to do so.

FRAN QUITTEL is an expert in high-tech careers and recruitment. Send questions to her at www.computerworld.com/career_adviser.

But bankruptcy information remains on your credit report — and usually in the public record — for 10 years. Where you're going to work and what you're going to do might be important, because specific laws and rules govern financial institutions, health care workers, school employees and some government jobs, to mention a few. For criminal convictions, there is no time limit on reporting your record.

Dear Career Adviser:

I am interviewing at a start-up company that is going out for funding. They have offered me a fairly low salary and 50,000 shares of stock. While that sounds like a lot, I have no idea regarding the value of the stock or what it means in the total valuation of the company. Can you help? — START-UP STOCK

Dear Start-Up:

Get lots of information before deciding.

Ask how many rounds of funding the company has already gone through, the total number of shares outstanding, the price you will pay for your options and whether the company knows what the stock price might be at the time of its initial public offering, advises Ben Slick, president of PeopleScape Inc., a high-tech recruiting company in San Jose.

But that's not enough. "[Because] issuing stock to you is a securities transaction, there must be full disclosure of the company and its prospects so you know the value of what you're buying," says tax attorney Mark Epstein at Epstein and Friedman LLP in San Francisco.

In other words, review the offering memorandum or business plan and examine comparable companies that have already gone public at *www.sec.gov* or *www.ipo.com*.

Calculate that company's prospects and, to determine if the promise of future rewards offsets the cut in your current pay, follow this formula: Multiply your shares (split- or reverse-split-adjusted) by the anticipated offering price, less the price of your options, weighted by any restrictions or vesting schedules.

WORKSTYLES

What It's Like to Work in IT At Kendall-Jackson Winery

Interviewee: **Jason Womack, network services manager**
Company: **Kendall-Jackson Winery Ltd. *(www.kj.com)***
Location: **Santa Rosa, Calif. (north of San Francisco)**
Number of IT employees: **18**
Number of employees (end users): **550, including 150 remote users**
Dress code: **Business casual. Jeans and a dress shirt are commonplace.**
Do you have a view of rural Sonoma County? **"There are no views from the IT area – we face the parking lot. The executive offices face the vineyards."**
Must people carry beepers? Cell phones? **"We all have beepers across the board."**
On-site day care? **"No. We used to, but we have grown so much nationwide that the owner didn't feel it was fair to offer that here and not throughout the company."**
In-house cafeteria/food service: **"No cafeteria, but we have a hospitality and tasting room, and we can arrange for them to prepare food and send it over here."**
Rating (scale of 1 to 10, with 1 poor): **"Definitely a 10. The chef is very well-respected. She went to a culinary academy."**
Workday: **"It varies by the season. There are people who come [in] at 5:30 a.m. and leave at 7 p.m., and others who are here 8 a.m. to 5 p.m."**
Why are some people working longer hours? **"They're responsible for a major, in-house-developed [inventory management] application that we are trying to ramp up before [grape] harvest season."**
What issues does the harvest raise for IT? **"People are working frantically to monitor blocks [of grapevines] to determine their readiness, their expected harvest dates, what brands and bottles they might go into, etc., so there's a lot of additional input to the system. A lot of our facilities are operating 24/7, and the system has to be available or we could have trucks with grapes just sitting on them."**
When is the harvest? **"It depends on the weather. Usually it starts between late August and mid-September. If it's very hot, we have to get [the grapes] off the vine early, or if it's really moist, we could have mold issues."**
Is wine served at staff meetings? **"No. Pastry – the person who was on call over the weekend is responsible for bringing pastry to the staff meeting on the following Tuesday."**
What's it like to work with wine makers? **"They're not shirt-and-tie number-crunchers. They have less of an 'anal' mentality, for lack of a better word. They perceive themselves as creating art in a bottle, and they take great pride in their work. We [in IT] have a more personal relationship with them than I've had in my previous work experiences. They're less uptight about deadlines and are very agreeable and open-minded to new ideas. Generally speaking, they're early adopters of new technologies."**
What's your best-known label? **"Our Vintner's Reserve Chardonnay. Everyone loves that one."**

– *Leslie Goff*

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Is a space-optimized server that requires more than these five tools truly optimized?

It's not surprising that the interior of the Compaq ProLiant 6400R is entirely tool-free. After all, like every ProLiant server, it's been designed with customer input from the very start. With maximum 4-way computing power in just 4U, and comprehensive reliability features for maximum uptime, the ProLiant 6400R is just what you've come to expect from the leader in rack servers. And with handy features like top and side access panels, a unique cable management arm and simple slide-out rails, it's exactly what your data center needs. Let the unsurpassed server experience embodied in our ProLiant 6400R give you a hand in solving your business IT problems. **www.compaq.com/hand**

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TECHNOLOGY

THUMBS-UP FOR NETWARE 5.0

After nearly a year on the market, NetWare 5.0 could fulfill the long-held promise of single-console management for an array of corporate IT components, some customers say. ▸ 58

SHOPPING FOR BANDWIDTH

When it comes to broadband links, one size doesn't fit all. We describe why four retailers chose ATM, frame relay, ISDN or satellite to link their stores to headquarters. ▸ 62

HANDHELDS, PHONE HOME

As handhelds become more popular, several vendors launch software to link the devices with Lotus Domino. Meanwhile, Synchrologic announces three tools to manage file distribution, data synchronization and software distribution across Palm and Windows CE devices. ▸ 60

OUCH! THESE FREEBIES BITE

Free broadband access is good, but free PCs are bad — at least for your Web site, according to technology evaluations editor Cynthia Morgan. ▸ 62

A WIN FOR THINKPADS

A more rugged look and feel, quick availability and the promise of superior support has led Owens Corning to choose IBM ThinkPad 600E notebooks over several competitors. ▸ 60

MIXED BAG FOR LINUX

Linux is booming in the market for server appliances, which are used primarily by small offices and workgroups for Internet access. But the open-source operating system will face slower going in the traditional server market, a market research firm predicts. ▸ 58

QUICKSTUDY

Intel's Next Generation Input/Output architecture (NGIO) was released to hardware vendors last week. Learn what this new architecture could mean for server performance and for you. ▸ 64

FLASHBACK TO 1978

Texas Instruments unveiled the "Speak & Spell," and Intel rolled out the 8086 microprocessor, running at a blistering 4.77 MHz. ▸ 72

EXEC TECH: WEB PHONES

"You get what you pay for" certainly applies to Internet phones. They're cheap, but so is the quality. ▸ 65

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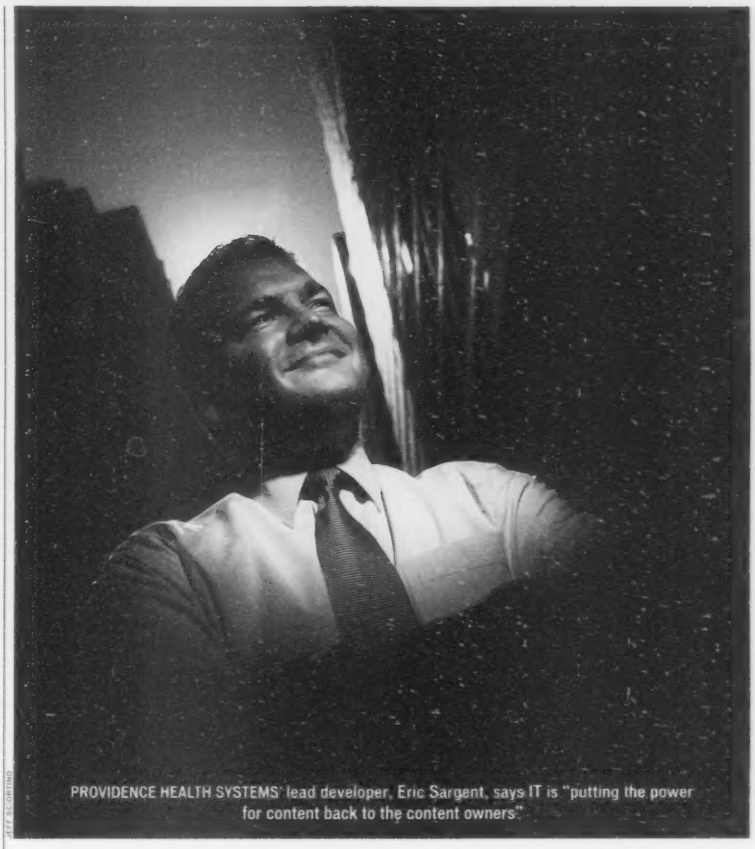

JEFF SCIORTINO

PROVIDENCE HEALTH SYSTEMS' lead developer, Eric Sargent, says IT is "putting the power for content back to the content owners".

LET USERS UPDATE WEB CONTENT

IT MANAGERS find that it makes sense to let users update their own Web content with relatively easy-to-use tools. Here's a look at two IT groups that have handed over the responsibility to end users — with the other using a high-end content manager and one using a low-end tool — along with tips on how you can make it happen in your organization.

66

BRIEFS

Java Data Server

WebXi Inc. in Burlington, Mass., recently announced Data Server Java Edition, designed to help companies create, deploy and manage data-intensive Java applications. The product's Java Database Connectivity driver lets programmers do code-free automatic database connection pooling, and its data server engine manages connection pools to multiple databases. The browser-based management console displays runtime statistics collected by the engine.

It costs $4,500 to $50,000.

www.webxi.com

Windchill Gets Cooler

Parametric Technology Corp. in Waltham, Mass., this week plans to announce an upgrade of its Windchill product-data management software with new product modeling features. Included is support for storing product assembly and configuration data and for centrally aggregating the work of multiple engineering design teams.

Pricing starts at $2,995 per concurrent user.

www.ptc.com

Plan App Thinks Small

Kewill Systems PLC's enterprise resource planning (ERP) division in Foster City, Calif., last week released Windows-based production planning and scheduling software designed for small and midsize users. The system is an addition to Kewill's Max ERP suite of applications.

Pricing starts at $3,995 for four users.

www.kewill.com

Why Java?

What are the top reasons your company uses Java?

Cross-platform support ("Write once, run anywhere")	79%
Good for Web-based applications	67%
Delivers network-oriented services	53%
Easier to use than other object-oriented languages	33%

Base: Survey of 43 U.S. IT managers at companies using Java; multiple responses allowed

SOURCE: COMPUTERWORLD IT INTELLIGENCE UNIT, FRAMINGHAM, MASS.

Users: NetWare 5.0 Pulls It All Together

NDS nears goal of cobbling together operating systems — including Windows

BY SHARON GAUDIN

After nearly a year on the market, Novell Inc.'s NetWare 5.0 has customers saying it could fulfill the long-held promise of single-console management for an array of corporate information technology components.

For a year now, Novell has said it will succeed by helping its customers cobble together various operating systems and making them run as one unit. Users said that's just what NetWare and its Novell Directory Services (NDS) is doing for them.

"NetWare 5 has changed the type of services we can offer our students," said Stephanie Benoit, academic computing coordinator at the Community College of Southern Nevada in Las Vegas.

"It's given us enough scalability and flexibility to handle the fact that we're growing by about 22% every semester," she said. "In the old days — well, a year ago — people wanted Internet access. Now, I need to give them hard-drive space, [3-D] studios [and] the ability to send files electronically to faculty. It's exploded."

> It's given us enough scalability and flexibility to handle . . . that we're growing by about 22% every semester.
>
> STEPHANIE BENOIT, COMMUNITY COLLEGE OF SOUTHERN NEVADA

Benoit, who uses some Unix and a few Microsoft Corp. Windows NT servers, said she's evaluated Microsoft's Windows 2000 operating system, due by the end of this year, but has no plans to rush to it.

"You have to look at the cost of switching compared [with] what it can do for you," Benoit said. "I need to be able to take care of all these kids' services with one directory. I need NDS for that. . . . There haven't been any showstoppers with NetWare. Why would I give up on that?"

"Novell has been able to largely hold on to its customer base with NetWare 5, and they've also picked up new users. It's a good combination," said Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass.

"I don't see that changing when Windows 2000 comes out. . . . There's a lot of reasons to keep NetWare, and it would be really expensive to change platforms just because. People aren't going to be jumping to do that," he said.

Industry watchers said that's exactly what will keep most NetWare users in that camp — or at least force them to administer mixed NetWare and Microsoft environments.

"The race is no longer about getting a company to choose one or the other," Kusnetzky said "Now, it's all about making them work together."

That's where users and analysts said Novell has a foothold. Able to handle a half-billion objects, NDS tracks not only devices and user names, but also routers, security, applications and switches.

That means administrators can use it to manage more of their burgeoning enterprises from one console.

Windows 2000's Active Directory can't yet handle as many objects as NDS.

Active Directory also can't handle information from non-Windows directories, but NDS can perform those functions with NT, Linux and some Unix servers. Windows 2000 and Active Directory boast far more applications than NetWare, though.

"NDS is a huge piece of the NetWare picture," said Lee Roth, LAN and security services manager at Southwest Airlines Co. in Dallas.

"Our world evolves around the directory. . . . People using [Active Directory] will be in for a painful couple of years. NDS is working fine for us. There's no reason to look anywhere else," Roth said.

NetWare Nexus

NetWare shipments grew 8.3% last year, helping Novell to build a solid installed base:

PRODUCT	INSTALLED BASE
NetWare	4.1M units
Windows NT	3.3M units

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

Linux Shows Growth in Server Appliances

Strongest in small offices, workgroups

BY JACK MCCARTHY

Linux server appliances will account for almost 24%, or $3.8 billion, of worldwide server appliance revenue by the year 2003, according to a study released last week.

Those sales will represent about 14% of all server appliance shipments, or 1.1 million units, according to the study released by Dataquest, a unit of Gartner Group Inc.

While Linux is booming in the market for server appliances — used primarily by small offices and workgroups for Internet access — acceptance of Linux will proceed more slowly in the traditional server market, Dataquest predicted.

LINUX

Growing Demand

In 2003, Linux servers are expected to represent 3.4% of worldwide traditional server revenue, or $1.9 billion, and 8.1% of traditional server shipments, or 450,000 units, the study forecast.

Linux, the open-source operating system whose source code is freely available for modification and public distribution, has gained increasing acceptance from vendors.

IBM offers database and other products that run on Linux, and Hewlett-Packard Co. sells a variety of server-based applications for it.

Additionally, firms such as Caldera Systems Inc. and SuSe Holding AG distribute and support Linux software.

Linux is becoming "a credible and favorite" operating system in the appliance server market, according to Kimball Brown, chief analyst at Dataquest's Emerging Server Technologies Worldwide program.

Server appliance vendors are using Linux because it's free and because its open-source method of development promotes support and continuous public upgrading, which saves vendors time spent supporting the operating system, Brown said.

McCarthy writes for the IDG News Service in San Francisco.

83% of companies HAVE NOT TESTED

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DLT TAPE

*DLTtape ProveIt Index for Disaster Readiness: Q199

Tools Link Handhelds, Data

Synchrologic product manages file distribution, data synchronization and software distribution to various devices

BY MATT HAMBLEN

SYNCHROLOGIC INC. in Atlanta has announced three tools to manage file distribution, data synchronization and software distribution for large, mobile workforces.

Analysts said that combination will be unique, giving information technology managers a tool that can work with notebooks as well as handhelds running either the Palm Computing or Windows CE operating systems.

The data synchronization portion of Synchrologic's iMobile package is available now for notebook computers. Rollout of data synchronization for Palm and Windows CE handhelds — as well as file and distribution tools for notebooks and handhelds — will occur by year's end. Synchrologic officials said iMobile will eventually support smart phones, including the Epoc operating system from Symbian Ltd., predominant in Europe.

"With such tools, the enterprise can now consider deploying mission-critical information to all its employees and give access to resources wherever they may be," said analyst Gerry Purdy at Mobile Insights Inc. in Mountain View, Calif.

Happy Users

Global shipper Maersk Inc. in Madison, N.J., has used a prior release of the data synchronization product for nearly two years. "It's helped tremendously," said John Benzaia, systems administrator for sales force automation at Maersk.

About 250 sales personnel use the tool to send shipping requests from their notebook computers to corporate headquarters, where the requests are compared with records of excess space aboard freighters.

Maersk officials last year [Servers & PCs, Sept. 21] said the tool would enable sales representatives to retrieve data in only 15 to 20 minutes per week of connection time, compared with two hours per week online under the older method. That alone cut network service costs from $286,000 per year to $14,000 per year, they said.

Maersk said the daily updates help fill partially full shipments for greater revenue.

Purdy said start-up @hand in Austin, Texas, will unveil a similar package in the fall. Several other vendors offer some of the same capabilities as the iMobile package, according to Purdy and Randy Giusto, an analyst at International Data Corp. in Framingham, Mass. They include Puma Technologies Inc. in San Jose, Riverbed Technologies Inc. in Vienna, Va., and Symantec Corp. in Santa Monica, Calif.

Pricing for iMobile is based on the client platforms and servers in use and wasn't disclosed. ◗

Handheld Computer Forecast

Worldwide shipment projections for handheld computers:

YEAR	MILLIONS
1999	5.7
2000	7.6
2001	11.0
2002	15.9
2003	21.0

SOURCE: DATAQUEST, SAN JOSE

Vendors tackle data access from mobile devices to Notes and Exchange, but there's still no connectivity standard

BY DOMINIQUE DECKMYN

WITH handheld devices becoming increasingly popular as a platform to run corporate applications, several vendors are launching software to link the devices with Lotus Development Corp.'s Domino.

One new offering — Pylon ServerSync 2.5 from Chicago-based Globalware Computing Inc. — offers what it claims is the easiest way yet to let Palm users access Domino databases without additional software development.

Like products from other vendors, ServerSync also lets users download e-mail and synchronize calendars, address books and to-do lists from a Domino server using a dial-up Internet connection.

The catch for users is the relative immaturity of these types of products, said Ken Dulaney, vice president of mobile computing at market research firm Gartner Group Inc. in San Jose. He also noted another missing link: the lack of a single architecture to address various platforms such as the Palm Computing, Windows CE and smart phones running the Epoc operating system from Symbian Ltd.

Lotus offers only limited Notes access for handhelds. But Dulaney said he expects Lotus' parent company, IBM, which resells a version of the Palm platform, to come up with its own software soon.

PYLON SERVERSYNC 2.5 offers Domino-to-Palm features and boosts Notes access

Business Offerings

For beta tester Jeff Cave, however, ServerSync is providing new business capabilities at Hicks & Ragland Inc. in Lubbock, Texas.

Cave, a systems integrator at Hicks & Ragland, is using the product to fill requests from 10 sales and support people on the road with Palm III, IIIx and Palm V devices. Users at the telecommunications engineering firm had asked to access a Notes database with detailed staff information from their Palm devices, and "ServerSync made that possible," Cave said.

San Jose-based Puma Technology Inc. sells a similar server synchronization product for Microsoft Corp.'s Exchange Server, and its own Domino-to-Palm synchronization product, IntelliSync Anywhere for Domino, is scheduled to ship in September. Another vendor in this space is River Run Software Group Inc. in Greenwich, Conn.

Pylon ServerSync, which runs on top of Windows NT versions of Lotus Domino 4.5, 4.6 or 5.0, is available now at $1,195 per server and $145 per user.

Atlanta-based Synchrologic Inc. (see accompanying story) has pledged Epoc support for future versions of its data synchronization, file synchronization and software distribution tools but hasn't set a time frame for such support. ◗

MOREONLINE

For coverage of Lotus Domino and related subjects, visit our Web site.
www.computerworld.com/more

ThinkPads Tapped by Owens Corning

Rugged feel, support boost IBM over rivals

BY MATT HAMBLEN

A more rugged look and feel, quick availability and the promise of superior support led Owens Corning in Toledo, Ohio, to choose IBM ThinkPad 600E laptops over several competitors.

Although price was one of the top criteria, Owens Corning chose 2,500 of the IBM models, at just more than $2,300 each, passing over Dell Computer Corp.'s Latitude CPI 300 XT, which would have cost "marginally" less, said Pat Heldt, a desktop release manager at Owens Corning.

The $5 billion building products maker is leasing the machines for two years; it's halfway through a deployment that began in May.

High Bidders

Hewlett-Packard Corp. and Compaq Computer Corp. also made bids that were "definitely higher," Heldt acknowledged. Many factors mattered to Owens Corning, including reliability and ease of support through its reseller, Inacom Corp. in Omaha. "When we laid the IBM side-by-side with the Dell, the IBM had a much more rugged and polished feel," Heldt said.

Also, IBM said it could deliver all the machines by Sept. 30, which is the deadline set by Owens Corning to stop installations because of the year 2000 bug, the company said.

Dell and other vendors said they couldn't meet that deadline, according to Owens Corning officials.

Owens Corning's choice of the ThinkPad 600 isn't surprising, said Gerry Purdy, an analyst at Mobile Insights Inc. in Mountain View, Calif.

"For a full-function notebook, [the ThinkPad] is the most successful computer ever created," he said. ◗

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NETWORK PRINTING SHOULDN'T BE THIS HARD!
I'M DOING WHAT WE SHOULD HAVE DONE IN THE FIRST PLACE...
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Price, Speed, Location All Part of Broadband Choice

Retailers adopt everything from ISDN to satellite links to connect to their stores

BY DAVID GRENSTEIN

ASK FOUR retailers what broadband technology connects them to their stores and you may well hear four different answers.

■ Hannaford Bros. Co. in Scarboro, Maine, will finish a rollout of Asynchronous Transfer Mode (ATM) in September.

Only 2% of retailers use ATM, which offers tremendous bandwidth but comes at a high cost, according to a survey of more than 300 retailers published in May by PricewaterhouseCoopers and *Retail Technology* magazine.

The 150-supermarket chain has seen bandwidth needs rise from 5K bit/sec. in 1994 to 30K bit/sec. this year, said wide-area network team leader John Bartlett. The company also wanted to provide voice, data and even video on its network. ATM provides 256K bit/sec. at the stores now and can scale to 900K bit/sec. when videoconferencing is added, Bartlett said.

Hannaford paid $1 million for the routers and other hardware and will pay $1.6 million annually in network costs. But ATM is much more reliable than the satellite network it replaced and faster than frame relay or Integrated Services Digital Network (ISDN) lines, Bartlett said.

■ Sears, Roebuck and Co. in Hoffman Estates, Ill., needed to wire 860 stores last winter. A new PeopleSoft Inc. human resources application required a fast IP connection, but legacy systems also needed support for IBM's SNA protocol.

The answer, said Bernie Bartelli, Sears' vice president of store systems, was frame relay. The 56K bit/sec. connection typically costs at least $500 per site per month, according to Dataquest, a unit of Gartner Group Inc. in Stamford, Conn. But Sears can now bring its intranet and Web applications to its stores, Bartelli said.

Per-minute charges for ISDN would have been too costly, and satellite too unreliable, said Tom Sletten, store systems senior project manager at Sears.

■ Rack Room Shoes, a 320-store chain in Charlotte, N.C., signed a contract for VSAT service last month.

Satellite is the choice of 18% of retailers, the PricewaterhouseCoopers survey showed — especially smaller stores, those in malls where dishes can be shared or where other technologies are unavailable.

Rack Room fits all three criteria, said Harvey Borden, the company's systems and logistics vice president. Bandwidth from the stores is 128K bit/sec. and 16K bit/sec. in the opposite direction.

VSAT costs about $225 a month per site, according to Dataquest. But any store will be able to query inventory chainwide, Borden said. If weather threatens the satellite service, the stores can use phone lines, he added.

■ 7-Eleven Stores in Dallas is rolling out bandwidth-intensive data mining and similar applications to more than 5,000 mini-marts. By using 64K bit/sec. ISDN lines, it can partition traffic over different channels to ensure bandwidth for crucial credit authorization.

An ISDN line can cost about $40 per month but carries usage charges of about 5 cents per minute. ◗

Linking a Chain

Retailers have four major choices in wide-area network technology. Here's what some are choosing:

COMPANY	TECHNOLOGY	WHY
Sears, Roebuck	Frame relay	Reliable, inexpensive and accommodates SNA and IP
Rack Room	VSAT	Very inexpensive way to reach small markets and shared satellite dishes at malls
Hannaford	ATM	Very high bandwidth; combines voice, video and data
7-Eleven	ISDN	Can use multiple channels to partition traffic

CYNTHIA MORGAN/COMMENTARY

Freebies that bite

FREE PCs! Free Internet access! Free T1 connections! Free corporate Web sites!

Say hello to the latest high-tech sales model — the old-fashioned loss leader. George Eastman made a bundle for Kodak when he gave away cameras and sold the film. Now it's the latest high-tech Web marketing idea: Give away products and basic services, then charge for network usage or premium services.

The giveaways that come to IT departments directly are largely favorable. The ones you don't normally think about — consumer loss leaders such as free PCs — are going to turn around and bite you. Hard.

Consider the quality-of-service offerings that are adding new options to the way IT buys Internet access.

Three years ago, a T1 connection to the Internet might cost a couple thousand dollars per month to lease. These days, an IT department can lease one for free to $200 per month if you also buy a services package or guarantee a certain level of usage, for which you pay extra. Web site hosting is often free, too, if you accept the minimal "best-effort" service and agree to pay a few cents per megabit for downloads.

It's great for IT managers to pay data traffic charges because now they can know precisely when they're starving a potential profit center and when they're wasting their money.

Traffic Jams Ahead?

But giveaways on the consumer side will cause problems by spilling a whole new crop of users onto an already inadequate infrastructure. What happens when someone mentions a URL on prime-time TV and prompts thousands or even millions of viewers to simultaneously check out the site? Web managers will gain whole new insights into the word "scalable," that's what.

CYNTHIA MORGAN is *Computerworld*'s technology evaluation editor. Contact her at cynthia_morgan@computerworld.com.

The increasing acceptance of the Web as a place to do business will increase the already gigantic demand on corporations for maintaining useful, real-time Web presence.

Already popular Web server colocation and hosting services will become the only options for all but the biggest IT organizations. The scarcity of skilled people and the expense of around-the-clock maintenance for what are fast becoming carrier-class Web sites will see to that.

Load testing your Web applications for scalability and reliability will be requirements, not options. Pinging your site externally to make sure it's up isn't enough. Your admins must be able to see real-time slowdown reports that could signal disaster. That could be expensive, but it's the price of freebies. ◗

Cha Aims Big With Micropayments Service

Expects to expand to 100 merchants this year, 15 million users in five years

BY GARY H. ANTHES

CHA isn't the first company to enable small, cash-like payments online, but it claims that it's the first to get the concept right.

"For years I've been looking for a micropayment system, and when I saw what Cha was bringing together, I thought it could be a really great solution," said beta tester Terri Lonier, CEO of Working Solo Inc. in New Paltz, N.Y. (*www.workingsolo.com*).

Cha Technologies Services Inc. in New York has signed up Working Solo, a marketing services firm, and 24 Web merchants to try out its 1ClickCharge Internet payment service. The service is intended for small purchases — from pennies to about $20 — of Web content and was designed to be ultraconvenient for both merchants and consumers.

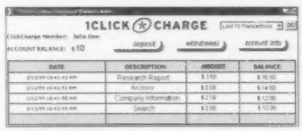
CEO HEIDI R. GOFF: Cha aims at the Internet's next phase

Consumers can buy from participating merchants with a single mouse click — no identity or credit-card information is entered, not even the first time a merchant is visited. And merchants can join the 1ClickCharge network with no investment in hardware or software and with no ongoing responsibility for maintaining the system. The business is scheduled to open to the public in September at *www.1clickcharge.com*.

Earlier attempts to create digital cash for small transactions have suffered from two serious flaws, said Brian Smiga, a vice president at Cha. Merchants objected to up-front participation fees and the need to install hardware and special software. And buyers balked at the need to load complicated client software and exotic digital money on their PCs.

1ClickCharge will appeal to users who want to outsource the headaches of setting up, running and maintaining a payment collection system to Cha. "Merchants can sign up with us in two days as compared with weeks with anyone else," Smiga said.

Consumers sign up for 1ClickCharge through Cha, entering credit-card and other information via an encrypted exchange. Cha charges the card $20 to establish a cash-like balance for the consumer to use at participating Web merchants. The credit card is automatically charged again in $20 increments as the user makes online purchases through Cha, and once per month Cha remits to the merchant the value of its online sales, less a fee ranging from 5% to 20% per sale.



BUYERS can register with Cha to purchase small items on the 1ClickCharge Web site

Cha doesn't reveal to the merchant the credit-card number or, if the buyer so elects, the identity of the buyer. But Cha guarantees that the seller's content will flow only to properly authenticated — and paying — customers.

"There's an evolution in the Internet," said Cha CEO Heidi R. Goff. "First there was a publishing environment, then it became interactivity and now we are at a transaction level. The next step is settlement and fulfillment — the things we are trying to do."

Motocross.com plans to use 1ClickCharge to sell reprints from automobile magazines for less than $1. "Cha's appeal is very simple," said Michael Dalton, director of business development at the Somers, N.Y., firm. "They are enabling us to sell microtransactions at a profit." And outsourcing the technology is attractive, Dalton adds. "We don't want to get into the engineering; we just want it to work," he said.

"Once you get this set up, it kind of runs itself," Lonier said. She said there was no way she could justify the effort and expense of having her staff process credit-card purchases of information she wants to sell for as little as $2.

Cha hopes to have 100 merchants by year's end and 15 million users in five years. Twelve percent, or $2 trillion, of the U.S. economy's transactions are less than $20, and Cha is betting the number of small transactions on the Internet will grow from next to nothing to about the same percentage.

To succeed, Cha must convince merchants that it's safe to put proprietary content online, while persuading buyers to entrust their credit cards to an unknown company that will take a $20 bite before any purchases are made. "One of Cha's challenges will be to build credibility and awareness in the marketplace," Dalton said.

Cha Technologies Services Inc.

Location: 704 Broadway, 2nd Floor, New York 10003

Telephone: (212) 358-4033

Web: *www.1clickcharge.com*

Niche: Cha acts as a trusted third party between online buyers and sellers, allowing credit cards to be used economically for small, private, cash-like purchases.

Growth potential: Technology scales easily. Cha projects 100 member merchants by year's end and at least 3,000 by the end of 2002.

Why it's worth watching: Because everything is outsourced, information technology managers don't have to install or maintain hardware or software for payments collections.

Cha officers:
- Heidi R. Goff, CEO
- Jonathan Leitersdorf, chairman

Company goal: "To dominate the space we call convenience e-commerce" – Brian Smiga, vice president

Milestones:
- Founded in 1996
- Product debuted in March
- Full commercial launch planned for September

Employees: 22; 50 by year's end

Current year financials: $6 million loss on revenue of $200,000

Estimated profitability date: 2001

Burn money: $3.5 million from cofounder Jonathan Leitersdorf and other venture capital firms. Second venture capital round to be announced next month.

Price: No setup fee for merchants, at least until year's end. Transaction fee from 5% to 20%.

Customers:
- Miller Freeman Inc. (*www.mfi.com*)
- Zacks Investment Research Inc. (*www.zacks.com*)
- Hoover's Inc. (*www.hoovers.com*)

Red flags for IT: Slow acceptance. Cha's technology seems solid, but will buyers and sellers embrace the concepts? Cha wouldn't be the first to fail with online micropayments.

COMPUTERWORLD emerging companies

the buzz
STATE OF THE MARKET

The Competition

■ Qpass Inc.
Seattle
www.qpass.com
This partner of Andersen Consulting is Cha's most direct competitor. It offers online buying via its Content Transaction Network of Web merchants. Service is quick (one-click), secure and free to buyers. Content vendors include *The Wall Street Journal Interactive Edition* and the Department of Commerce.

■ CyberCash Inc.
Reston, Va.
www.cybercash.com
CyberCash supports online buying with credit or debit card, cash, checks and smart cards. Although many consider it the micropayments pioneer, CyberCash no longer supports micropayments, which could be a danger sign for Cha. Instead, CyberCash's InstaBuy service enables secure, one-click shopping with participating merchants such as Egghead.com and Barnesandnoble.com after a one-time registration. It recently extended the service in a deal with NetGravity Inc., which lets buyers click on advertising banners without having to navigate the advertising merchant's site.

■ Cybergold Inc.
Berkeley, Calif.
www.cybergold.com
This company brings together online advertisers, publishers and buyers in its Earn & Spend Community and delivers digital content for as little as 25 cents. Cybergold pays consumers cash for online actions such as registering at a Web site, completing a survey or subscribing to a service. The cash can be spent online or credited to a Visa card. Cybergold offers an outsourced, or "hosted," option in which the micropayments processing runs on a Cybergold server, or it can be installed on the merchant's Web server.

■ Compaq Computer Corp.
Palo Alto, Calif.
www.millicent.digital.com
Believe it or not, PC giant Compaq is definitely a player in the micropayment game. Compaq's MilliCent allows online sales by pay-per-click or subscription. Users buy electronic "scrip" from brokers and use it to purchase Web content from participating merchants, whose server validates tokens to test for tampering, theft and adequacy of payment. Users buy scrip with a credit card, through checking account withdrawals or by having the purchase added to their monthly Internet provider bill.

Next Generation Input/Output

DEFINITION

Next Generation I/O (NGIO) is input/output architecture for servers. It was developed by Intel. NGIO Spec 1.0 was released last week; it promises to improve server performance, reliability and scalability.

BY STEVE ALEXANDER

THE NEED for faster server input/output, the process of moving data to and from a processor, will be crucial in the next few years because of the increased use of the Internet, intranets and extranets. As a result, Intel Corp. is advancing an I/O architecture called Next Generation I/O, or NGIO. It promises improved reliability, scalability and performance. Other supporting vendors include Dell Computer Corp. and Sun Microsystems Inc.

Last week the NGIO steering committee approved the release of the NGIO 1.0 spec. This release allows members of the NGIO Forum to start implementing, developing and releasing products that support NGIO. But users won't see complete systems supporting NGIO until 2001 or 2002.

A competing standard, Future I/O, is being backed by IBM, Compaq Computer Corp., Hewlett-Packard Co., 3Com Corp., Adaptec Inc. and Cisco Systems Inc.

NGIO claims speeds of 2.5G bit/sec. in both directions. That means there are four wires — two for input, two for output; Future I/O claims 10G bit/sec. over 40 wires.

The cost of NGIO for the end user will be "roughly $20 per machine," says Charles Andres, chairman of marketing at the NGIO Forum and Group Manager for I/O at Sun Microsystems. "Over time the cost will come down."

It's going to be a while until there's even a demand for NGIO. "In the small server space, it will be several years before NGIO is needed," says Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H. "For larger servers, we are closer and closer to needing NGIO."

James Gruener, an analyst at Boston-based Aberdeen Group Inc., says NGIO will benefit several key applications. It would aid e-commerce by simplifying the data transmission infrastructure and increasing speed, help e-mail by handling more users per server and reducing downtime and improve online transaction processing by enabling the addition of processors and memory as the number of users increases.

NGIO works by disconnecting the processor from the I/O, meaning the processor wouldn't stop what it's doing each time there's a new request for data processing. Instead, an I/O engine connected to the server's memory would talk to peripherals.

The following are the three major differences between other technology and NGIO for the way data travels:

1. The creation of multiple I/O channels (today there's one channel for data traveling to the processor).
2. A change in the kind of signaling over those channels (data would be sent along one wire, a serial connection, instead of being sent simultaneously along many wires, a parallel connection).
3. A "switched fabric" approach, in which a collection of switches will let data take many pathways instead of one.

Those changes give NGIO better performance, reliability and scalability.

Today's parallel connections generate a certain amount of electronic noise that interferes with the server's operations. With the higher transmission speeds needed in the future, that electronic noise will become a bigger problem. By changing to serial protocols, less noise will be generated, and reliability improved.

Other improvements in reliability will be achieved because NGIO has several I/O data channels not directly connected to the processor. Today it's possible for corrupted data in the single, directly connected data channel to foul the operating system, causing a blue-screen of failure.

Another reliability factor is redundant I/O connections, or data pathways. "Rather than have one path from memory or the processor to a disk, you may have three independent channels. So even if two fail, it's no big deal," Eunice says.

Scalability would improve because more processors could be added without adding more internal data channels, or buses, connected directly to the processors. Directly connected channels increase time lags, or latency, and reduce performance, Gruener says.

There are other advantages. With NGIO, the server is split so the processor and memory are in one location and the I/O is in another. With this setup, it's possible to stack more servers in the same physical space, Gruener says. The I/O might be placed in a networking closet, while the processor and memory could reside in the data center.

Even with all these benefits, there's some speculation in the industry about NGIO. "The question is, 'Can NGIO gain enough industry momentum to really have an influence in the market?' This is the big issue right now," Gruener says.

Adds Eunice, "The question everyone is asking themselves is, 'Is this going to happen?' Even though Intel is backing this, no one knows if it will be successful." ◗

Alexander is a freelance writer in Edina, Minn.

Q&A Intel Exec: NGIO Satisfies Users' Needs For Reliability, Scalability

Tom Macdonald, general manager at Intel's NGIO division in Hillsboro, Ore., recently spoke with *Computerworld* about the significance of NGIO:

Why is NGIO needed now?
IT people recognize that I/O requirements are increasing at a rapid rate. The Internet and e-commerce activities are certainly putting more requirements on the scalability and reliability of the I/O. You can't afford to have a Web server go down or run out of capability as things are growing.

Can you give an example of how NGIO improves performance?
Today, a networking device interrupts the processor each time it needs something. That's not efficient because the processor is being stopped needlessly. In NGIO, we put in an I/O controller, called a host channel adapter, that services the networking device's request. As a result, the processor doesn't have to get interrupted each time.

What are the benefits of NGIO?
It satisfies the end user's need for highly reliable and scalable servers. In addition, NGIO products will be delivered quickly, starting in 2000, which is one to two years ahead of other, competing specifications. And there are more than 75 members in the NGIO Forum working on delivering solutions.

Does Intel benefit from designing NGIO components or licensing the NGIO architecture?
We expect to make money from devices, not from trying to charge royalties. But the way the NGIO Forum works is a bit complicated. Member companies can license the technology in a royalty-free or a royalty-bearing fashion. ◗

Intel's Tom Macdonald: "You can't afford to have a Web server go down"

MOREONLINE
For more information about NGIO, visit our Web site. **www.computerworld.com/more**

Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.

Cheap, and It Shows

BY DAVID ESSEX

IT'S NO SECRET that you can make phone calls over the Internet to save money. PC-based Internet phones have been out for more than four years. What's changed in the past year is the number of access points and the variety of devices from which you can call. You save because you can generally use a free local access number to get on the Internet, rather than more expensive long-distance connections over the public switched phone network. There are three ways to make an Internet phone call: PC software, standalone Internet phones and calling cards. I tried three of the better products in each category. The bottom line is these things aren't right for most information technology executives, except for gadget lovers and those who travel internationally, where hotel long-distance charges can exceed $10 per minute.

INTERNET PHONES

All Internet phones offer savings and some added functions (such as e-mail and voice-mail access) at a significant detriment to sound quality and convenience. Calling cards, the simplest method, require punching in long access codes and waiting for connections to be made, and they often must be replenished if you've prepaid. PC-to-phone systems usually involve wearing headsets and dialing with a mouse (or installing a PC Card), and self-contained devices must still be connected to a regular phone and can call only other Internet phones. Such devices certainly aren't free. Somewhere along the line, you pay for the IP gateway — the hardware that converts analog sound into packets of digits — either on your desk or at a service.

Of the three, PC phones are the best option because once they're set up, they can be used to either call other Internet phones or go through a service to reach regular phones more cheaply than calling cards (Net2Phone Inc. charges only 4.9 cents per minute for domestic calls). You can run them from the same laptop you take on the road.

Analysts and vendors say the technology is rapidly moving behind the scenes into "click-to-talk" buttons on Web sites and other forms of one-to-one communication through Web browsers. Bruce Kasrel, an analyst at Forrester Research Inc. in Cambridge, Mass., predicts the phones will take off only when people don't realize they're using the Internet.

Alex Winogradoff, a principal analyst at Dataquest in San Jose, says standards need to be adopted and larger telecommunications companies must enter the game before Internet phones will have adequate sound quality, standardized interfaces and the ability to communicate with any phone.

Eventually, the emphasis will be on value-added features rather than cost savings. "They're not going to give all these features away," Winogradoff says.

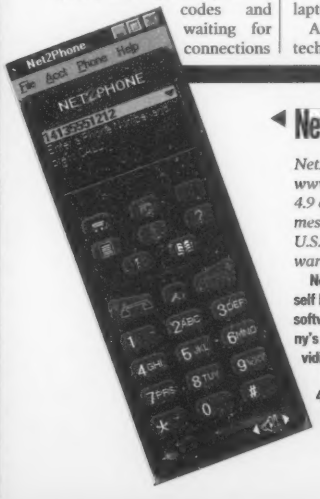
I tested the Net2Phone PC phone system, Aplio/Phone, a little box that turns your regular phone into an Internet phone, and AT&T's Connect 'N Save Service, a calling card. I'd pick Net2Phone for its ability to connect with both PC and regular phones cheaply and conveniently. ◗

Essex is a freelance writer in Antrim, N.H.

Aplio/Phone 2.0

▲ The card, called Net2Phone Direct, uses a widely-available 800 number and charges 7.9 cents per minute – much less than Connect 'N Save's 800 number.

This one's the winner because of its competitive sound quality, deep discounts and accessibility from more than one calling device.



◀ Net2Phone PC

Net2Phone Inc.
www.net2phone.com
4.9 cents per minute U.S. domestic (15 cents daytime to U.S. from overseas; PC software is free)

Net2Phone made a name for itself by being the first to make PC software that could dial the company's IP gateway hardware, thus providing a link to standard phones.

I tried the PC software on my 400-MHz Pentium II Compaq Deskpro with headphones and a mike that came with a voice-recognition program. The sound quality was rich, like a stereo with the bass turned up, smooth (typical PC sound circuitry is superior to that of standard phones) and nearly on par with Connect 'N Save. However, the on-screen buttons I "pressed" to send touch tones to a company's automated response system didn't register.

Net2Phone also offers a calling card that competes with AT&T's (as do many other vendors, most notably a company called Delta Three Inc.). Card calls were of typical quality, though one call I made to a second line at home had severely clipped speech on the other end.

Aplio/Phone 2.0

Aplio Inc.
www.aplio.com
$199

Aplio squeezed the necessary PC circuitry into a speakerphone-size device that gets your regular phone out onto the Internet. The result is an Internet phone that's a pain to set up, not too hard to use, but ultimately of narrow appeal – more for close siblings, college students overseas and corporations with international offices than for busy executives.

Both the caller and person being called must have an Aplio/Phone (or a microphone/headphone-equipped PC running Microsoft Corp.'s NetMeeting or Aplio software), so you can call only select people. Setup consists mostly of using the phone keys to tell the device your user name and password at your Internet service provider. The connection starts with a possibly costly call over regular phone lines (though the device has a "100% free" mode that avoids this by connecting one phone to the Internet while waiting for the other to call and tying up the line in the meantime). Hang up, and a few seconds later, the box rings the phone. Answer, and you're on the Net. I found it easy to make calls both ways once I learned the procedures.

Aplio/Phone has other neat functions, including a Find Me feature to let other Aplio/Phone users locate you if you've connected your box to a different phone number.

I found the Aplio/Phone's volume and sound quality poor, and Internet congestion and transmission problems can prevent connecting altogether, which Aplio does warn you about. It's too much trouble if you make mostly domestic calls to a variety of people.

AT&T Connect 'N Save Service

AT&T Corp.
www.att.com/connectnsave
7.5 cents per minute with local access (15 cents via an 800 number)

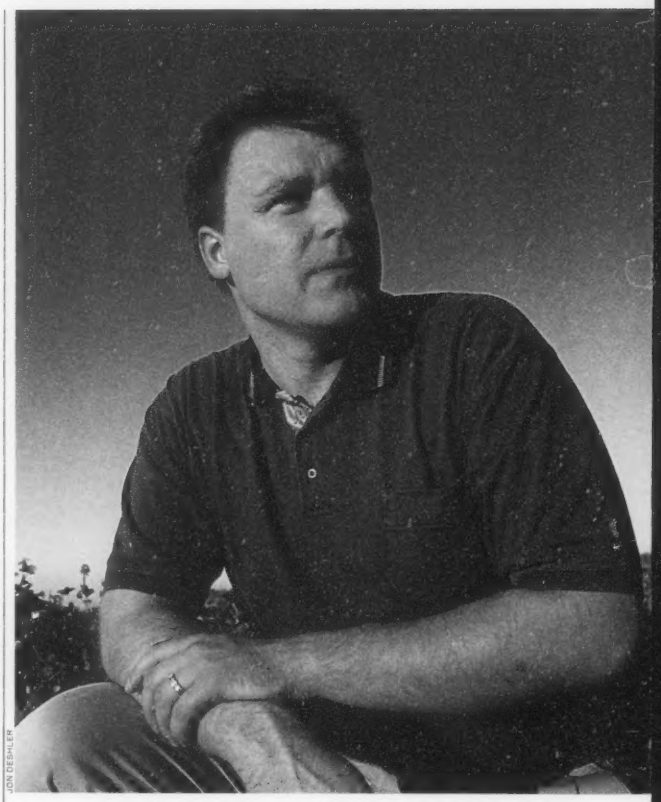
AT&T is the only major long-distance company to offer consumers an Internet phone service accessible from regular phones. The company prides itself on using its own IP network rather than the generally poorer-performing public Internet (Net2Phone basically does this, too). I found Connect 'N Save to have the best sound quality, slightly ahead of Net2Phone's and a whole class better than Aplio/Phone's. However, even superior hardware couldn't mask the telltale signs of voice over the Internet: frequent clipping of words, a sort of wiggle in the overall sound and the sensation of talking into a drum.

Connect 'N Save reduces domestic calls to 7.5 cents per minute if you're near a local-access node in one of seven major cities, only a bit less than AT&T's own One-Rate plan (10 cents per minute). If you must use an 800 number, as I did, the cost jumps to 15 cents per minute, still far less than a standard call.

Connect 'N Save is a decent way to save a little money on long-distance calls without giving up much in quality and convenience.

GIVING USERS THE KEYS TO THEIR WEB CONTEN

It makes sense: Who better to update and handle Web content than the end users who create it in the first place? As business units use Web technology to get more efficient, they're finding they can cut out the IT middleman when creating their corporate sites by using Web content management tools on their own By Tim Ouellette



JON DESHLER

BUSINESS GROUPS at Providence Health Systems in Portland, Ore., complained to information technology staff about the sometimes outdated and incorrect content of the company's intranet web sites. That was especially frustrating to IT workers, because the content originated from and belonged to the business groups, says Erik Sargent, lead Internet developer at the health care provider.

So Providence Health's IT and Web development group did what many companies are considering: They gave up some of their central power to let business personnel in different departments contribute directly to corporate Internet and intranet sites with the help of Web content tools.

Even giant companies like the new Bank of America, created in a merger with NationsBank Corp., are beginning to look for efficiencies in Web-site management by freeing up development to business groups.

More IT groups can do this because the tools have made it easier for users to create, manage and update Web sites without knowing the intricacies of the Internet programming language HTML. Sargent and his team at Providence Health used Microsoft Corp.'s FrontPage 98 on their development efforts. And because the company standardized on Microsoft Office productivity tools, it made sense to stay with FrontPage when allowing employees to do the intranet publishing duties.

One reason was that FrontPage maintained the same look and feel as Office, so there was a gentler learning curve. The other reason: FrontPage was cheaper to roll out to the 108 non-IT people now contributing to the intranet, rather than buying high-end tools with big price tags.

Bank of America chose NetObjects Inc.'s Authoring Server Suite 3.0, because it could best handle the many different people who would be contributing to the same intranet sites. The firm had previously used NetObjects Fusion for its desktop Web publishing efforts.

"Now we have multiple people supporting the web sites and contributing content from different time zones, which is important when your customers are all over the world and looking for fresh content," says Ted Allen Miller, senior vice president for corporate Web development at Bank of America in Chicago.

Because companies are still in the early stages of allowing more non-IT people the power to publish Web content, many of the existing HTML editing tool vendors like Microsoft and NetObjects have the upper hand, because they have an installed base of users familiar with their products who are ready to upgrade. Those products and others, like Macromedia Inc.'s Dreamweaver and Adobe Systems Inc.'s GoLive, let users author pages directly in an HTML environment instead of converting documents from non-HTML formats, says Dan Keldsen, director of information systems at The Delphi Group in Boston.

Other products automate the creation and management of Web-page content to a higher degree like Open Text Corp.'s Livelink Intranet, Documentum Inc.'s RightSite and Interleaf Inc.'s WebBusiness 2.0, he adds. Other vendors that manage Web content automatically and focus less on creating content and workflow include Vignette Corp., Inso Corp. and UserLand Software Inc.

Automated approaches use existing templates to be filled with user-supplied data. This method can be quick and easy, but it can also include strict guidelines for page formatting and what data can go where, Keldsen notes.

Users must be able to handle multiple windows, click and drag objects and manage similar tasks to create a Web site using automated tools. But because

more and more people are familiar with the Internet from all the surfing they do, the transition and required training isn't expected to be very great, Internet analysts say.

Intranets a Good Start

Most companies, such as Providence Health, are still in the early process of opening the corporate intranet to employee contributions and are finding that the corporate intranet is the best place to let new contributors test their skills.

"Our CIO decided having IS develop [intranet] content and manage everything centrally would bog things down for everyone," Sargent says.

Like Providence Health, the corporate Web development group at Bank of America didn't want to get saddled with trying to manage and update the hundreds of intranet web pages created because of the merger.

Although Bank of America hasn't opened up all intranet site publishing to employees in non-IT roles, some units are contributing directly to their own Web sites now, Miller says.

For example, Miller's group gave a three-person marketing group in Atlanta the client software to NetObjects Authoring Server Suite 3.0 to do their own Web-site publishing. The group handles marketing for the bank's treasury services business unit. A similar effort is going on in San Francisco.

"The sites are so big, it was critical to have many people working on the same site," Miller says.

One issue IT must be aware of when opening Web-site publishing to non-IT employees isn't even technical. IT has to understand that it can't just throw the keys to corporate Web sites to the masses and wash its hands of the trouble. The move requires planning and monitoring by IT personnel to make it a success. And business groups still count on IT to identify the best tools to get the job done.

For example, Sargent looked at more tools than just FrontPage to give to non-IT users, when preparing for the change.

"FrontPage was not the best tool out there, but [it was] the most practical for us," Sargent says. He says he expects the product's limitations — like the lack of good source control to track changes to a Web page from multiple contributors — to be dealt with in the next version.

Sargent says he hasn't limited publishers to FrontPage, though. Some power users in the departments will be allowed to use more advanced tools if they can show how the site they're maintaining will benefit.

More Publishers Mean More Control

Miller says he likes NetObject, because no other product he has seen lets groups manage so many pages in a consistent way. For example, one change in a navigation bar can be propagated across all pages in the site, he says.

Even with more freedom to contribute to their Web sites, users need some central IT control to keep a handle on security issues, a constant look and feel across the intranet or Internet sites for navigation purposes and to avoid publishing inappropriate content.

"People should have secure limits so they may only be able to change layouts or access a certain page. There are some people who we only want to change text content, not graphics and images," Miller says.

Managers at Providence Health are required to sign off on requests to become publishers before IT will train a user on FrontPage. The managers also are responsible for the content of their department's site, to guard against questionable content.

A typical site at Providence Health has a calendar, phone contacts and meeting minutes — a lot of static information, Sargent says. But users like the new control of their Web sites so much that they're starting to think of ways to make their sites more useful to intranet surfers, he says.

"The project is really putting the power for content back to the content owners," Sargent says. "Our departments understand that we've given them a lot of power that not many other companies have given their employees. And it's a shame more companies aren't doing this."

Ouellette is a freelance writer in Scarboro, Maine.

JEFF SCIORTINO

"NOW WE HAVE multiple people supporting the Web sites and contributing content from different time zones, which is important when your customers are all over the world and looking for fresh content," says Ted Miller, a Web development leader at Bank of America

> "Our CIO decided having IS develop [intranet] content and manage everything centrally would bog things down for everyone."
>
> ERIK SARGENT, LEAD INTERNET DEVELOPER, PROVIDENCE HEALTH SYSTEMS OF OREGON

Five Tips for Giving Users Web Content Control

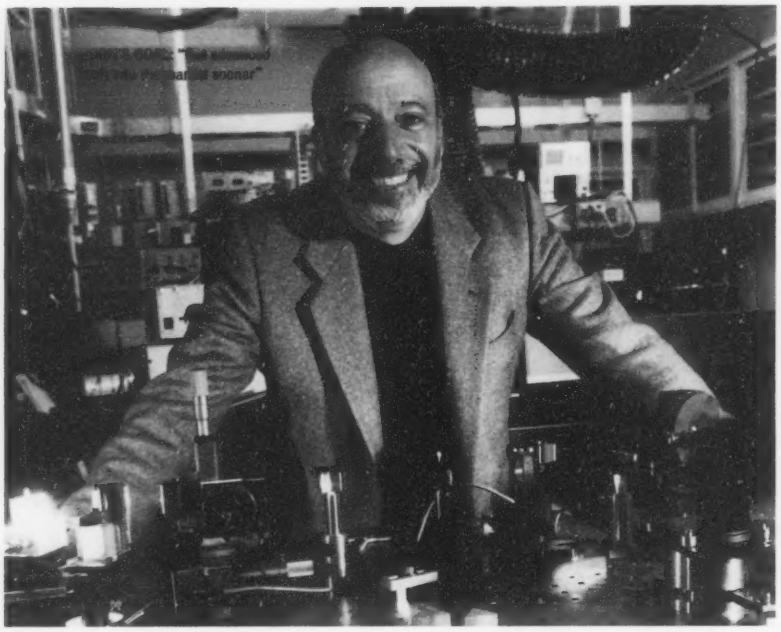
1 LOOK FOR TOOLS THAT MAKE SENSE
Some tools may be too powerful and more costly than what your users really need.

2 SPUR CREATIVITY
Consider a competition among business departments for the best site, to help spur users to more creative uses of their sites.

3 SET SOME LIMITS
Yes, you have to keep some control. Consider putting limits on exactly what parts of a Web page users can change and who can change what pages. You still want some consistency across the organization.

4 GIVE MANAGERS RESPONSIBILITY
Make managers sign off on who will be publishing from their groups, and make the managers personally responsible for the content that goes on their sites. That will help prevent the publishing of inappropriate content by some users.

5 MAKE USERS COMFORTABLE
Training users well on the tools will help users become confident in their ability to properly manage and update their sites – and save IT the trouble of fixing problems later on and providing continuous support for minor problems.



Going Deep

Under Paul Horn, IBM Research at the Thomas J. Watson Research Center in Yorktown Heights, N.Y., has produced chess champion Deep Blue, the world's first copper computer chip, the giant magneto-resistive head and the world's first provably unbreakable cryptosystem. As senior vice president and director of research, he leads 3,000 researchers at eight laboratories in two key areas that IBM calls "deep computing" and "pervasive computing."

Horn previously was director at IBM's Almaden Research Center in San Jose. He's a fellow of the American Physical Society and a member of many professional boards. Before going to IBM in 1979, he was a physics professor at the University of Chicago in Illinois.

Horn spoke with Computerworld's *Gary H. Anthes.*

What are the most important technologies to have come out of IBM Research? For impact on IT, I'd have to list the disk drive, [dynamic RAM] — we just had the 30th anniversary of that key patent — the relational database and maybe RISC computing. There's also high-temperature superconducting and the scanning tunneling microscope.

What about future home runs? We are very excited about "deep computing." For example, we have a project in human genomics. Once you sequence the genome, what does it mean? Going from a sequence of amino acids to something meaningful about disease is really a big computing problem. We have a project aimed at understanding how proteins form their 3-D structures; if you can figure that out, you really make a difference in understanding the origins and cures for disease.

I'm excited about our work in e-business. In 10 years, as much as 15% of the U.S. economy will be driven electronically. It will grow to many trillions of dollars. There will be lots of tools and processes to enable e-commerce. IBM Research's role is both the invention of the individual processes and the platforms that help integrate them and the ones from other companies.

How has IBM Research changed under CEO Lou Gerstner's regime? If there's a big change in the past five years, it's the focus on the customer. Lou brought that to the whole company. The other thing he brings is, there is now far more excitement in the company about technology than in the past 20 years.

So customers and technology are important. Wouldn't any IBM CEO have said that? Maybe, but maybe Lou walks the talk better than some of our past CEOs. I don't remember a CEO who's been so clearly supportive of the technology agenda. My [research] budget, as a fraction of all R&D, has gone up since he's been here. We spend more than our competitors, as a percentage, on research. The agreement we have is that if the company does well, research will be at the forefront of our growth.

Has IBM Research become less long-term in its thinking about technology? [Gerstner] said, "Let's figure out how to get technology into the hands of customers quickly." We still believe in long-term basic research, but we are now more focused on the whole pipeline and how to get advanced stuff into the market sooner.

Can you give some examples of how you're working with customers in ways you might not have before? Fuji Bank wanted to help people who were connecting in to do Web interaction but were having a problem. We made it so they could click on an icon and get connected over the same phone line to a call center and get connected to someone who could share the screen with them and help provide answers. Now that has become a standard offering called ContactFusion.

We worked with the city of Orlando to build teams in response to emergency conditions such as a hurricane. It's a Lotus Notes interface that allows you to connect to team members regardless of how they want to be connected — by e-mail, phone, pager and so forth. We call it a pervasive computing application. It's not a product yet, but it will become part of the Notes platform, so you can interact with a variety of things through Notes.

What advice are you giving CIOs today? IT is clearly changing business in phenomenal and unforeseen ways. The CIO has become far more central to corporate success. The CIO has got to be the leader that's going to help their company adapt to new business models. It's a much bigger role than the traditional CIO, who just provided a good desktop environment for the employees.

So should the CIO outsource some of those traditional functions? You can waste tons of time building perfect solutions. To the extent you can outsource things that are nonstrategic, it's a good thing to do. Providing desktop applications in many cases is nonstrategic [compared with] how you re-engineer your supply chain. ◗

WHO IS HE?

Paul Horn directed the development of chess champion Deep Blue, the world's first copper computer chip, the giant magneto-resistive head and the world's first provably unbreakable cryptosystem.

Anthes is Computerworld's *feature writer for business and technology topics. Contact him at gary_anthes@computerworld.com.*

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Say What? The TI Speak & Spell

Spelling aid was first device to use synthesized human speech

BY LESLIE GOFF

IF YOU were running around last Christmas trying to get your hands on a Furby, the hairy little toy that can learn to talk, you can thank — or curse — a team of four innovative engineers who debuted the gadget's granddaddy back in the summer of 1978.

At the Consumer Electronics Show that June, Paul Breedlove, Gene Frantz, Richard Wiggins and Larry (George) Brantingham of Texas Instruments Inc. unveiled the Speak & Spell, a red and yellow plastic, notebook-size learning aid that was the first device to use synthesized human speech.

Four years later, the Speak & Spell would become famous as the toy that E.T. rigged up to "phone home" in Steven Spielberg's 1982 summer blockbuster, *E.T. the Extra-Terrestrial*. But from the beginning, demand was high, even at the then-high retail price of about $60, recalls Breedlove, then engineering manager for specialty calculators, who helmed the project.

"We started production in time for Christmas of '78, and we couldn't build enough all the way through Christmas of '79," Breedlove says.

The Speak & Spell was the first device to use a digital signal processor (DSP), a specialized integrated circuit that executes algorithms in real time. The DSP enabled the duplication of human speech by using linear predictive coding to formulate a mathematical model of a human vocal tract. The model could predict a speech sample based on previous input.

Speak to Me

When activated, the Speak & Spell asked the child to "Please spell" one of 200 words stored in its memory. The child would key in the spelling on an alphabetically arranged keypad, and the toy would respond "Correct" or "Try again."

"It hadn't entered anyone's mind that we could do something that talked," says Breedlove, who at the time was putting his two grade-school kids through spelling drills. "But it occurred to me that a spelling aid should work the same way that parents worked with their kids."

Today, the descendants of the DSP at the heart of the Speak & Spell are used not only in toys, but also in more serious applications like speech synthesis for voice-mail systems and telephone directory assistance. And DSPs are still phoning home: They power digital cellular phones.

"It was that kernel that . . . opened Pandora's box," Breedlove says, "There are a million things you can do with DSPs."

PHOTO COURTESY OF TEXAS INSTRUMENTS INC.

TEXAS INSTRUMENTS' Speak & Spell toy used linear predictive coding to create a mathematical model of a human vocal tract

1978

In January, **Apple Computer Inc.** demonstrates its first working prototype of a **5.25-in. floppy** disk drive for the Apple II at the Consumer Electronics Show in Las Vegas. By June, it's shipping the **Disk II,** which links to the computer via a cable, for retail sale at $495, including controller card. The Disk II increases Apple II sales significantly and boosts the profile of the 5.25-in. disk drive, introduced by Shugart Associates in 1976. By the end of the year, 10 companies are manufacturing the 5.25-in. disk drive.

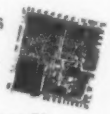
A whopping 51,000 people attend **The National Computer Conference** in Anaheim, Calif., in June.

James Martin's *The Wired Society* is published. It's nominated for a Pulitzer Prize.

Cullinet Software is the first software company to be listed on the New York Stock Exchange. Computer Associates International Inc. eventually acquires it.

Microsoft Corp. ships Microsoft **Cobol-80,** its third computer language product, and begins working on a version of Basic for the Intel 8086. Year-end sales exceed $1 million, and co-founders Bill Gates and Paul Allen announce plans to move their growing company from Albuquerque, N.M., to Bellevue, Wash.

Intel Corp. debuts the 4.77-MHz **8086 microprocessor,** featuring 16-bit registers, a 16-bit data bus and 29,000 transistors. It can access 1M byte of memory and operates at a speed of 0.33 MIPS.



Seiko Epson Corp. introduces the **TX-80** dot-matrix printer, setting a new standard in low-price, high-performance printers.

Atari announces the **Atari 400 and 800** PCs, based on MOS Technology's 6502 microprocessor. They don't begin shipping until the following year.

Transmission Control Protocol (TCP) splits into TCP and Internet Protocol (IP), to form the familiar TCP/IP.

Raymond Kurzweil receives the 1978 Grace Hopper Award for the **Kurzweil Reading Machine,** which reads books to the blind.

Dennis Hayes starts D. C. Hayes & Associates Inc. It's later renamed Hayes Microcomputer Products.

Digital Equipment Corp. opens a retail store in a mall to sell small computer systems priced below $10,000.

Commodore ramps up its PC business, establishing a dealer network for its **Commodore PET,** introducing three dot-matrix printer models and a dual, 5.25-in. floppy drive unit. Meanwhile, Chuck Peddle, designer of the PET, leaves the company for Apple – but returns to Commodore before the year is out.

Dan Bricklin and **Bob Frankston** found PC software company **Software Arts.** Earlier, Bricklin had completed a Basic program that served as proof of concept for his proposed spreadsheet application. Personal Software's Dan Fylstra loaned him an Apple II to create the program, which would become **VisiCalc.**

The video game **Space Invaders** invades arcades. It's developed by **Taito,** a Japanese company.

Seymour Rubenstein forms MicroPro International Corp. It debuts **WordMaster,** an early word-processing application.

Digital and Carnegie Mellon University begin work on an expert system, called **XCON,** for configuring computer systems. Within two years, Digital will be using it on a regular basis, reportedly saving millions of dollars.

Stanley Rifkin steals over $10 million from Security Pacific Bank in Los Angeles by obtaining the bank's electronic transfer code. Posing as a branch manager, he transfers the money to his Swiss bank account.

The second **West Coast Computer Faire** takes place in San Jose.

Compiled by Leslie Goff and Computerworld's corporate librarian Laura Hunt.

FIRST BBS

Let Your Fingers Do The Talking

BY LESLIE GOFF

Chicago isn't home to a lot of firsts in computer industry history. But it was there, on Feb. 16, 1978, that one of the most significant "firsts" took place: The first commercial, computerized bulletin board system went online that day.

Developed by two local gearheads — Ward Christiansen and Randy Seuss — who wanted to exchange documents without having to swap floppy disks every time, it ran on a PC with an S-100 bus, 64K bytes of RAM, two single-sided, 250K byte, 8-in. floppy disks and a Hayes MicroModem 100.

Seuss put together the hardware, and Christiansen, an IBM mainframe programmer, developed the commands using 8080 assembler. They became part of the Xmodem standard: (R)etrieve (or "read"), (S)ummary (or "scan"), (E)nter Message, (K)ill Message and (G)oodbye.

Ward and Seuss dubbed their system the Computerized Bulletin Board System, or CBBS, which became a generic name for all such systems. The "C" was eventually dropped, but that original bulletin board is still online.

■ Flashback is produced with the assistance of The Computer Museum History Center in Mountain View, Calif.

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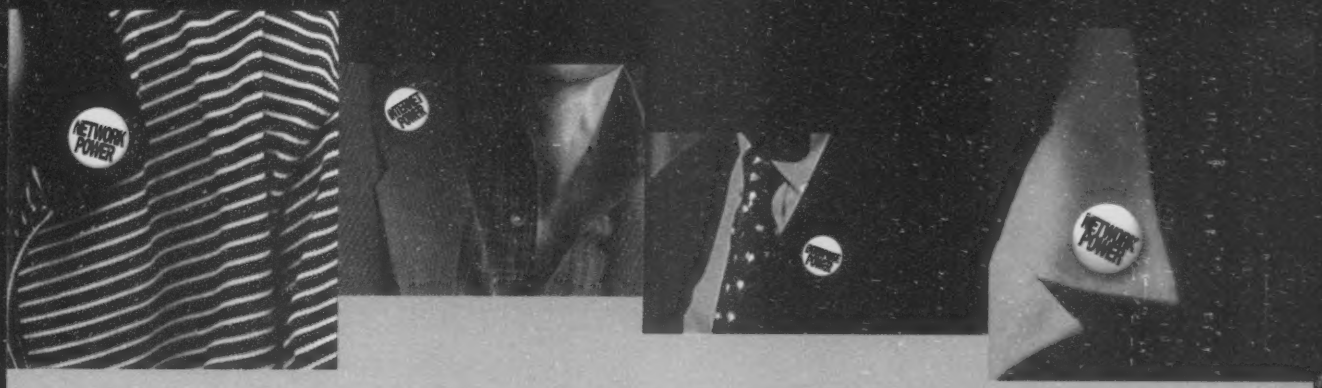

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Made in the Shade

Florida's southern coasts are known as havens for retirees and playgrounds for the wealthy, but the rest of the state is a tourist and business mecca. Here's a look at the top IT markets
By Jill Vitiello

Tallahassee

"Tallahassee is Florida with a Southern accent," says Norma Meier, director of the office of information services at the Florida Department of Insurance. "We have hills, Spanish moss and palm trees."

Tallahassee has lots of information technology opportunities, too — especially for college students. Meier hires them before they graduate, offering them the chance to work with advanced technology and to take courses toward technical certification. She encourages IT employees to complete college and stay in Florida rather than move on for higher salaries.

With its solid school system and small-town persona, Tallahassee is a great place to raise kids and be a working parent, says Meier, who has worked in the state government for nearly 20 years. You'll like living and working in Tallahassee if you enjoy beautiful springs, mild winters, access to the Gulf Coast and have a spirit of public service, she says.

That spirit is necessary because IT professionals in Tallahassee, which has a preponderance of government jobs, won't earn as much as their counterparts who work in private industry.

Skills in demand are business analysts, network specialists, Internet experts, Oracle developers and those with experience in thin client applications and desktop support, Meier says.

If you're looking for an IT job in Tallahassee, you should be willing to trade salary expectations for challenging entry-level positions.

Tampa

"Tampa's got it all," says Ron Caruana, director of the program management office at GTE Telecommunication Services Inc. The city has a diverse economic base, warm weather and a variety of cultural and professional sports offerings. Tampa calls itself the gateway to I-4, Florida's high-tech corridor that connects Tampa Bay, Orlando and the Atlantic Ocean's Space Coast.

In his previous position as GTE's director of information technology, Caruana sought software engineers with telephony skills in addition to Unix, Java, C++ and Oracle and more. GTE attracts talented IT pros with challenging work, competitive salaries and many benefits such as business casual dress, telecommuting options, flexible working hours and tuition reimbursement.

If you're looking for an IT job in Tampa, you should have a strong work ethic — and khakis.

Jacksonville

"I'm sold on Jacksonville — it's a gem," says Karen Gallagher, senior vice president and director of human resources at Alltel Residential Lending Solutions, a subsidiary of Alltel Corp. Gallagher is responsible for technical recruiting at the company.

In Jacksonville, which is located on Florida's Intracoastal Waterway, the Gulf Stream steers high humidity and hurricanes away. The economic base is stable, the roadways aren't congested, and there are cultural amenities and professional sports, including the National Football League's Jacksonville Jaguars who play in Alltel Stadium.

Even better, IT jobs abound in network technologies, thin client/server applications, mainframe, Cobol, business analysis, Oracle database administration and Web applications. Alltel advertises on the Internet, in national IT trade publications and in newspapers around the country. The company relocates individuals with the skills it needs; but 60% of new hires last year came from Alltel's employee referral program.

"We do a lot of cutting-edge application," Gallagher says. "People know they can start with us, learn applications and move ahead in their careers. They are happy working here and they bring in their friends and business associates."

If you're looking for an IT job in Jax, as the locals call it, you should bring a love of water sports and a friend.

Orlando

"I love Orlando," says John Matelski, assistant director of technology management for the city of Orlando. The area, home to Walt Disney World, is a tourist magnet and widely hailed by happy vacationers as one of the safest places to visit.

Matelski's IT professionals work behind the scenes to secure that reputation. Major IT initiatives include an Automatic Vehicle Location system to dispatch emergency trucks and cars; a computer-aided dispatch and records management system for the fire department; and a pilot to equip police cars with mobile computers.

"City government officials are interested in using technology to provide efficient, quality services," Matelski says. He's seeking Windows NT, Oracle, SQL and J. D. Edwards experts.

"One position we are struggling to keep staffed because of the volatile market is J. D. Edwards administrator," Matelski says. The city's two gurus were lured away by local companies in private industry that offered salaries as much as 40% higher than they previously earned.

In Orlando, it's not uncommon for an individual with more than a year of experience in J. D. Edwards to earn a salary of $90,000, Matelski says. To counter the trend, Matelski is offering J. D. Edwards training to build bench strength among his employees.

If you're looking for an IT job in Orlando, don't limit your search to the obvious "glamour" companies. ◗

Vitiello is a freelance writer in East Brunswick, N.J.

TALLAHASSEE
TOP FIVE EMPLOYERS
(BY NUMBER OF EMPLOYEES)

1	STATE OF FLORIDA
2	FLORIDA STATE UNIVERSITY
3	LEON COUNTY SCHOOL BOARD
4	CITY OF TALLAHASSEE
5	TALLAHASSEE MEMORIAL HOSPITAL

SOURCE: TALLAHASSEE PLANNING DEPARTMENT

TAMPA BAY
TOP FIVE EMPLOYERS
(BY NUMBER OF EMPLOYEES)

1	GTE FLORIDA
2	PUBLIX SUPER MARKETS
3	HSN
4	TECH DATA CORP.
5	RAYMOND JAMES FINANCIAL

SOURCE: TAMPA BAY PARTNERSHIP

JACKSONVILLE
TOP FIVE EMPLOYERS
(BY NUMBER OF EMPLOYEES)

1	WINN-DIXIE STORES
2	AT&T
3	BLUE CROSS
4	PUBLIX SUPER MARKETS
5	CSX TRANSPORTATION

SOURCE: U.S. DEPARTMENT OF LABOR, CITY OF JACKSONVILLE

ORLANDO
TOP FIVE EMPLOYERS
(BY NUMBER OF EMPLOYEES)

1	WALT DISNEY WORLD
2	FLORIDA HOSPITAL
3	PUBLIX SUPER MARKETS
4	ORLANDO REGIONAL HEALTHCARE SYSTEM
5	WINN-DIXIE STORES

SOURCE: CITY OF ORLANDO

COME TO FLORIDA

Project Director For SACWIS

The Florida Department of Children and Families is seeking applicants for a Project Director for the Statewide Automated Child Welfare Information System. This position is in the Select Exempt Service and located in Tallahassee, Florida. The salary range is $45,044 to $91,036 annually. This position reports to the CIO and manages a major functional unit of the department's IT organization.

Initially the responsibility will focus on completing a Request for Proposals process for acquiring contractor services to assist the department in designing and implementing a child welfare information system. The director will be responsible for ensuring that the business requirements are identified appropriately and satisfied via the contract. The director also has 48 full-time program and IT state staff to assist in completing the RFP process and monitoring the contract progress while interfacing with the rest of the IT organization and the program and field staff as needed. The system will provide the full spectrum of child welfare services, including intake, case management, and reporting, and will be used by over 4,000 field staff and community based care partner organizations who are charged with protecting the safety of Florida children and families. After the new system is developed and deployed, the responsibility will shift to maintaining and enhancing activities to support the ongoing/changing needs of the child welfare program.

Requirements of the position are in-depth project management experience, extensive experience in development projects for very large, complex information systems, and experience in maintaining systems at a high level of performance efficiency and cost effectiveness. The successful implementation of a similar project in the role of project director is mandatory for consideration.

Submit state of Florida employment application to: Jo Moore, CF Technology Centre, 1940 North Monroe Street, Tallahassee, Florida 32399-0710, (850) 487-8169, FAX (850) 487-6799. Email address - jo_Moore@DCF.State.FL.US DEADLINE: 5 P.M., August 11, 1999 EEO/AA Employer/Veterans Preference

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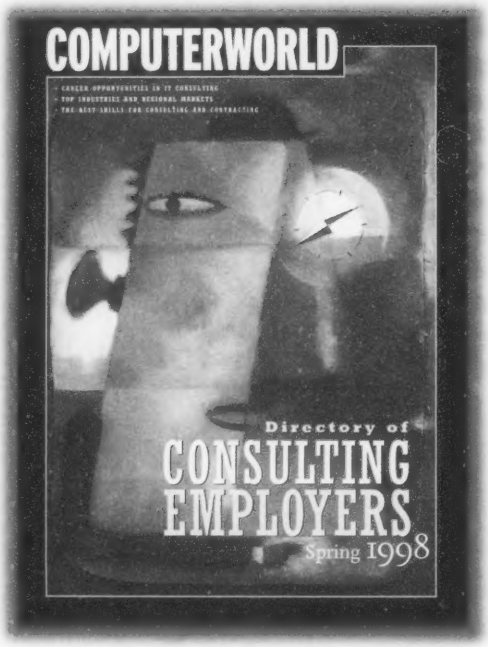

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- or -

- 1 year Java in Unix or NT environment, Visual Age experience a plus

DASD Administrator
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Sr. E-Commerce Specialist
- 1+ year Domino Go Webserver; 4+ years MVS Systems programming
- 2+ years architect and implementing E-Commerce solutions

Messaging Specialist
- 2+ years MVS Systems Programming experience; E-Commerce knowledge preferred
- Familiar with common protocols: X.400/500, SMTP, MIME LDAP, POP

Network Systems Specialist
- 5 years data processing experience, 3 years supporting VTAM and NCP
- 3 years working with SNA; TCP/IP and FTP networking protocols
- Understanding of router based data networking is preferred

DB2 DBA
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SOFTWARE ENGINEER to perform object oriented design using Unified Modeling Language of large enterprise wide deployable application services; software development in C/C++, Visual C++ and Java on Windows 98/NT, Linux and UNIX; network programming using TCP/IP, UDP and HTML; 3D graphics and visualization programming using DirectX and OpenGL on Windows 98/NT; enterprise deployable application development of CORBA using Orbix and C++; multimedia (audio and video using DirectShow). Web programming using Internet Explorer, Dynamic HTML, cascading style sheets, COM and ActiveX control development; and system administration in Windows 98/NT and UNIX (Sun Solaris and SGI IRIX platforms) for PC-UNIX interconnectivity using SAMBA. Require: M.S. in Computer Science and two years experience in the job offered. Salary: $62,000 per year, 8:30 am to 5 pm, M-F. Apply with resume to: President, ObvectNet Technologies, Inc., 325 Hammond Drive, Suite 202, Atlanta, GA 30328

SENIOR SOFTWARE ENGINEER to provide on-site software consultancy to design, develop, test and implement Legacy Systems software on OS/2, Windows NT/95, UNIX (AIX) and MVS operating systems involving MVS, JCL, VSAM, DB2, CICS, Cobol, C/C++, Java and IMS DB/DC; develop and test GUI applications in client/server environment by object oriented programming using low and high level languages, GUI tools and relational database management systems, compiler architecture and interprocessing techniques. Require: M.S. in Computer Science and two years experience in either job offered or as Programmer/Analyst. 40% travel required to customer's locations within the United States. Salary: $65,000 per year, 8am to 4:30 pm, M-F. Apply with resume to: President, YASH Technologies, Inc., 2100 Parklake Drive, NE, Suite F, Atlanta, GA 30345-2167 (Ref: NM99)

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Programmer/Analyst needed for software development & consulting svcs using C++, Java,VB, Oracle, SQL Server, DB2 in a client server environment preferably with Healthcare / Insurance industry exp. Must have BS/MS or equivalent in CS, MIS, Engg or Math with minimum 3yrs exp. Respond to HR Dept, Primesoft, Inc. 1259 Rt 46E, Bldg #1, Parsippany, NJ 07054.

Sr. Programmer Analyst: Duties include to analyze, design, develop & implement software applications by applying programming techniques in C, C++, ORACLE, JAVA on UNIX & Windows environment. Perform requirement analysis & design using object oriented methodologies. Create project specifications, models, diagrams and documents for coding and testing. Must have MS in Computer Science, Sal $70K/yr + Medical benefits. Send resume to President, Solutions Specialists, Inc., 2 Chestnut Sq., Sharon, MA 02067.

Web Designer wanted F/T by Retailer of Toys & Accessories in New York City. Must have BS in Computer or Communications Tech. and 1 yr exp dsgng, bldg & maintaining web sites & web pages & multimedia products; creating digital images, animations & sound and dsgng & prgmg interactivity of multimedia products. Respond to: Personnel, Pink Pussycat Boutique, 167 W. 4th St. New York, NY 10014.

Programmer-Analyst wanted by Computer Consulting Co. in Pikeville, KY. Must have BS or foreign academic equiv in Comp Sci or Engg and 2 yrs software experience. Respond by resume to: HR Dept, Paradigm IT Solutions, Div of Kris Electrical Mfg, Inc, 464 South Mayo Trail, Pikeville, KY 41501.

Software Developer needed F/T by S/ware Dvlpmt Co. in New York City. Must have Masters in Comp Sci and 1 yr exp in s/ware & applics dvlpmt to support internet multimedia tools; d/base driven applics using MS-SQL, Oracle & Sybase and dvlpg web-based systems using MS Internet Information Server, Active Server Pages and VB. Respond to: HR Dept, Cross Links Systems, Inc, 7 Dey St, New York, NY 10007.

Systems Analyst wanted by Computer Services Co. in Little Falls, NJ. Must have 1 yr exp analyzing user reqmts & dvlpg systems using MFG/PRO (Manufacturing/Progress) from QAD Corporation. Bach in Bus Admin or Comp Field. Respond by resume to: HR Dept, Integrated Systems & Services, Overlook Tower, 150 Clove Rd, Little Falls, NJ 07424.

Software Engineer wanted F/T by Computer Mftr & Sales Co. in Somerset, NJ. Must have Masters in Comp Sci, Comp Engg or Info Sci and 1 yr exp analyzing, dsgng & dvlpg comp s/ware using COBOL, VB & C++ w/SQL Server d/base in VMS and Win NT envrmts. Respond to: Charles Tu, Personnel Dept, Fountain Technologies, Inc, 50 Randolph Rd, Somerset, NJ 08873.

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Software Engineer needed by Computer Software Co. in Mahwah, NJ. Must have Masters in Comp Sci, Comp Engg or Elec. Engg and 1 yr exp in analysis, dsgn & dvlpmt of computer s/ware using ORACLE d/base & ORACLE/ 2000 and dvlpmt of Internet/Intranet applics using HTML and JAVA. Respond by resume to: HR Dept, Humanic Design Corporation, 1200 MacArthur Blvd, Mahwah, NJ 07430.

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PROGRAMMER ANALYST - Central, KY - Under supervision, analyze user reqs, design, develop, & implement software for info mgt sys on IBM MVS/ESA hardware using DB2, IMS DB/DC, COBOL II & JCL. Reqs: Bach in Comp. Sci., Math or Engr & 2 yrs exp. M-F, 7AM-4PM, 40 hrs/wk, $60,000/yr. Send resume to: Jane Hosley, 1109, DES 275 E Main St., 2-W, Frankfort, KY 40621. Only persons with authorization to work permanently in the US need to apply. Equal Opportunity Employer

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Help Desk Support Engineers - Actively participate in and deliver project, engineering, and overall support including systems support and testing, problem tracking, response/resolution of user requests, and identification and definition of user needs. Req. 3 yrs. exp. Help Desk Engineer or Network/Systems Administrator or related occupation. Must have working knowledge of UNIX, TCP/IP, Windows NT, and SQL Server. Send resumes to Big Apple Technologies, Claudine Carlisle, HR, 250 Park Ave. South, New York, NY 10003 or fax (212) 320-4912 or email ccarlisle@bigappletech.com

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Sr. Programmer/Analyst, Hanover, MD. Analyze, design, develop, implement & test software applications. Develop client-server applications. Debug, optimize applications & provide user documentation. Write algorithms using advanced mathematics. Required: B.S.C.S or related field & 2 yrs exp. with Visual C++, C, MFC, ActiveX, object oriented methodology, data modeling, Win 32 API, SQL server, & writing algorithms using advanced mathematics. M-F, 40/hrs/wk. Send resume and references to J. Hansson, HR, Aerotek, Ref.#105, 7301 Parkway Dr., Hanover, MD21076.

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10:45am	**General Session:** SILENT IMPACT: THE BASIC TENETS OF STAFFING & BOTTOM LINE EFFECTS Dan Hanyzewski, Mastech Corp.
12:00pm	**Luncheon Keynote**
1:30pm	**General Session:** DEFENDING THE FORT, RETENTION TECHNIQUES Joe Andrews, Progress Software
2:45pm	**Sponsor Showcase/Coffee Break**
3:30pm	**General Session:** CUTTING EDGE TOOLS FOR THE INTERNET RECRUITER Dr. Bret Hollander, NETRECRUITER
5:00pm	**Program ends**

CONFERENCE REGISTRATION FEE*

On or before August 1, 1999	$350.00
After August 1, 1999	$375.00

* Registration fee includes continental breakfast, lunch, breaks and the complete Conference Resource Guide.

CANCELLATION POLICY:
Cancellations must be received in writing. Cancellations received after August 17, 1999 will be billed for the full amount. There are no refunds for "no shows." Substitutions are permissible and should be made in writing.

SELECTED SESSIONS INCLUDE:

Sourcing Techniques
Cathy Peterson, Romac International
Are you covering all your recruiting possibilities in today's market? Get the latest update on the various sourcing techniques in this tactical presentation.

Silent Impact: The Basic Tenets of Staffing & Bottom Line Effects
Dan Hanyzewski, Mastech Corp.
The recruitment organization has a silent but profound impact on the success, or lack thereof, on a corporation's financial performance. So how does the staffing department - a cost center- drive a P&L mentality? Find out more in this key session.

Defending the Fort, Retention Techniques
Joe Andrews, Progress Software
Based on the front-line experiences of an HR executive in a technology company, you'll gain keen insight on some of the winning nonmonetary perks needed to help ensure that your company is the "greener pasture."

Cutting Edge Tools for the Internet Recruiter
Dr. Bret Hollander, NETRECRUITER
Recruiting changes every second on the Internet. This practical session from a leading internet recruiting professional will deliver the latest in electronic recruiting tools.

This conference program is developed exclusively for corporate human resource professionals who recruit directly for their hiring organizations. Vendors of selected, targeted products and services may participate through sponsorships and/or exhibits.

For more information, call the conference hotline: 1-800-488-9204

Consultant: Will analyze the relational database and informational needs of various financial institutions and modify sophisticated data warehousing, enterprise solutions, and other banking and financial software to customize products for use by clients. Uses principles of object oriented programming in C++ and C to develop graphic user interfaces to enable end users to access the financial information necessary for decision making purposes including establishment of client/user interfaces which must be integrated in a multi-platform environment existing in an IBM mainframe and IMS environment (using COBOL, in a DB2 relational database as well as CICS, JCL coding, and TSO/ISPF), OS2, as well as Windows 95 and UNIX operating systems. Requires Bachelor's degree in Computer Science, Management Information Systems, or Business Administration with a major in Management Information Systems. Also requires one year experience in the job to be performed or one year experience as a Programmer. Entire experience must include the programming of financial or banking software products using the techniques specified in the job offered. Hours: 9:00 a.m. - 5:00 p.m, 40 hours per week at $41,000.00 per year salary. Two copies of resume to: Gerald L. Gulseth, File #C100799, DWE-ALC, P.O. Box 7972; Madison, WI 53707-7972.

DATABASE/PROGRAMMER ANALYST. Will perform detailed design, analysis, coding testing and documentation of various phases of business database applications. Will modify applications and create add-on modules for open architecture accounting applications, using Dbase/Foxbase based programs. Will evaluate the feasibility and requirements for modification requests, will estimate time required to accomplish same. Will trace and correct application module problems. Will provide support as well as practical solutions, for end users with computer application usage, hardware, and network issues. Will assist in troubleshooting PC and network issues. Requires B.A. in Computer Systems. In completing bachelor's program, must have acquired a working knowledge of Dbase/Foxbase programming and general modular programming. Must have current authorization to be permanently employed in the United States. Annual salary of $30,431. 40 hours/week (hours vary). Send resume with Social Security Number to: Indiana Department of Workforce Development 10 N. Senate Avenue, Indianapolis, Indiana 46204-2277. Attention: Gene R. Replogle, Reference: I.D. #8049384

Systems Analyst wanted F/T by Systems Consulting Co. in Arlington Hts, IL. Must have Bach in Comp Sci and 2 yrs exp in full life cycle Lotus Notes applic dvlpmt using v3.x, v4.x & Domino under OS/2 & Win NT and system admin, d/base dsgn & prgmg using data migration tools, Lotusscript & Web exp. Respond by resume to: HR Dept, STA Consulting, Inc, 855 E. Gold Rd, Ste 2138, Arlington Hts, IL 60005.

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SYSTEMS ENGINEER-Design and implement relational database applications on Unix, Novell and Windows operating systems platforms using Informix and MS-Access relational database management systems. Obtain detail end-user requirements from both internal and external clients, derive functional specifications, design, program implement and maintain database applications using tools such as Informix-4GL, Informix-SQL, MS-Access, Crystal Reports 5.0 and Visual Basic 5.0. Develop functional specifications based on end-user requirements. Build and implement data model using functional specifications. Perform data modeling and data manipulation using MS-Access. Requires a B.S. in Computer Science and 1 in job or 1 year experience as a Programmer Analyst. Experience must have included developing functional specifications based on end-user requirements, translating functional specifications into logical database entities. Experience must have included MS-Access for data modeling and data manipulation. Monday-Friday, 9:00a.m.-6:00p.m., $48,000/year. No O.T. Must have proof of legal authority to work permanently in the U.S. SEND RESUME TO ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY 401 S. STATE ST., 7 NORTH, CHICAGO, IL 60605, ATTENTION ARLENE THROWER, REFERENCE #V-IL 21248-T AN EMPLOYER PAID AD. NO CALLS SEND 2 COPIES OF BOTH RESUMES & COVER LETTER.

Telecommunications company located in south central Illinois has openings for 10 Technical Consultants. The Technical Consultant is responsible for executing tests to evaluate software products; preparing test plans; testing cases and test procedures; creating scripts and using both manual and automated testing procedures and tools for testing; conducting application regression and systems testing; reviewing test plans; designing documents, testing results; creating test reports; tracking the TRIS+, ESMR and Merge System Test Plans; and developing and testing software in a commercial environment using UNIX, C and SQL. Qualified applicants must have a Bachelor's Degree in Computer Science, Physics or any Math, Electronics, Engineering, or Science field. Applicants must also have a minimum of either one year experience in the job offered or one year experience as a Programmer/Analyst. The work experience must include developing and testing software in a commercial environment using UNIX, C and SQL. Full-time position; 40 hours per week, 8:00 a.m. to 5 p.m.; $48,066 per year. Must have proof of legal authority to work permanently in the U.S. Send resumes to: Illinois Department of Employment Security, 401 South State Street - 7 North, Chicago, Illinois 60605. Attention: Joanne Breaux. Reference No.: V-IL 20549-N An Employer Paid Ad. No Calls - Send Two Copies of Both Resume and Cover Letter.

Programmer Analyst to design, develop & implement advanced Lotus Notes d/bases; connect Lotus Notes to variety of RDBMS using open d/base connectivity; design & develop various Groupware projects in Lotus Notes & use Visual Basic; prepare testing procedures & documentation; Reqs. Bachelor's in Comp. Sci., Comp. Engg., Comp. Info. Systems, Comp. Applications, Electrical or Electronics Engg. or Mathematics or its foreign educ equiv. plus 2 yrs exp in job offered or 2 yrs related exp such as S/ware Engr. Will accept 3 yrs of college educ plus 3 yrs exp in job offered or related occup. in lieu of req'd educ & exp. Related exp must include design & development using Lotus Notes & Visual Basic; & implementing, testing, document & end user training; $33.65/hr, 40 hrs/wk, OT as req'd 8a-5p. Send resume to MJC/ESA, P.O. Box 11170, Detroit, MI 48211-1170. Ref. #21499 "Employer Paid Ad"

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SOFTWARE ENGINEERS required for design, analysis, programming, implementation and testing of Oracle based applications for order processing using Oracle Financials and related Oracle Designer & Developer 2000 utilities including Y2K compliance testing. Master's degree required in Math, Computers, Engineering or any other related field of study plus 3 years of experience in the job duties described above. Employer will accept a Bachelor's degree and 5 years of experience in place of the Master's and 3 years mentioned above. Must have proof of legal authority to work in the U.S. Salary: $65,000/year for a 40-hour work week. Interested applicants contact the Oklahoma State Employment Service, 110 South Hartford, Suite 106, Tulsa, OK 74120 (I.D. #7207). Phone number (918) 596-7200. Refer to Job Order #372906. Ad paid by an Equal Opportunity Employer.

SOFTWARE ENGINEERS required. Design, programming and implementation of client/server architecture. Design/administer Sybase SQL databases and graphical user interfaces (GUIs) using PowerBuilder and Visual C++. Master's required in Math, Computers, Engineering or any other related field of study plus three years of experience. Employer will accept a Bachelor's and 5 years plus experience in lieu of the Master's and 3 years mentioned above. Must have proof of legal authority to work in the U.S. Salary: $80,000/year for a 40-hour work week. Interested applicants contact the Oklahoma State Employment Service, 110 South Hartford, Suite 106, Tulsa, OK 74120 (I.D. #7207). Phone number (918) 596-7200. Refer to Job Order #373284. An Equal Opportunity Employer.

Senior Software Engineer (2 openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have one year of experience using: 1 of Group A and 1 of Group B and 1 of Group C; OR 2 of A and 1 of B; OR 2 of A and 1 of C as follows: Group A - DB2, IBM3090, IBM ES9000, IMS, IDMS, MVS. Group B - CL/400, CICS, TSO, VSAM. Group C - TELON, COBOL, JCL, AS/400, RPG/400, COBOL/400. Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math Or Physics. Will accept Bachelors degree with five years of progressive experience as computer professional. Salary is $70,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resume to: Mr. Ralph Fertig, Acting Mgr., Pgh West Job Ctr., 320 Bilmar Dr., Pittsburgh, PA 15205. Job Order No.: 1026440.

SOFTWARE ENGINEERS required for analysis, programming, implementation and testing of the systems level software on IBM AS/400 platforms including design of system security and backup/recovery procedures. Bachelor's degree required in Math, Computers, Engineering or any other related fields of study plus three years of experience in the job duties described above. If no degree, the employer will accept five years of experience in place of the Bachelor's and three above mentioned. Must have proof of legal authority to work in the U.S. Salary: $75,000/year for a 40-hour work week. Interested applicants contact the Oklahoma State Employment Service, 11654-A E. 21st St., Tulsa, OK 74129. (I.D #7209) Phone No.: (918) 437-4473. Refer to Job Order #373562. An Equal Opportunity Employer.

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Senior Software Engineer (11 openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. One year of experience required using: 1 of Group A and 3 of Group B **OR** 2 of A and 2 of B as follows: Group A - Oracle RDBMS, Designer 2000, Developer 2000, Oracle Applications (Financials, Manufacturing - Order Entry & Inventory); Group B - Oracle Forms, Oracle Reports, SQL*Plus, Pro*C, PL/SQL, SQL*Forms, SQL* Reports. Work involves extensive travel and frequent relocation. Must have one year of experience as a senior software engineer or as a computer professional and a Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math or Physics or scientific or business related field. Will accept Bachelor's degree or foreign equivalent with five years of progressive experience as computer professional. Salary: $75,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. Duane M. Brentzel, Mgr., Greensburg Job Ctr., 599 Sells Lane, Greensburg, PA 15601. Job Order No.: 9098850.

Programmer/Analysts to consult w/users, perform full range of P/A duties for client/server & intranet/internet based appls., using Microsoft Visual Basic, Borland Paradox, MS Access, & SQL in mainframe & PC environs. & DOS & Windows o/s. Ensure existing appls.' Y2K compliance, make necessary source code mods. & perf. other rel. duties. Sal @$45,000/yr.; O/T@$32.45/hr.; Req's travel & MS in Comp. Sci., Elec. Eng. or Rel. Field. Send resumes to Jennifer Hansson, Aerotek/Maxim Group, Inc., 7301 Parkway Dr., Hanover, MD 21076. ID Ref. #LK-99-72208.

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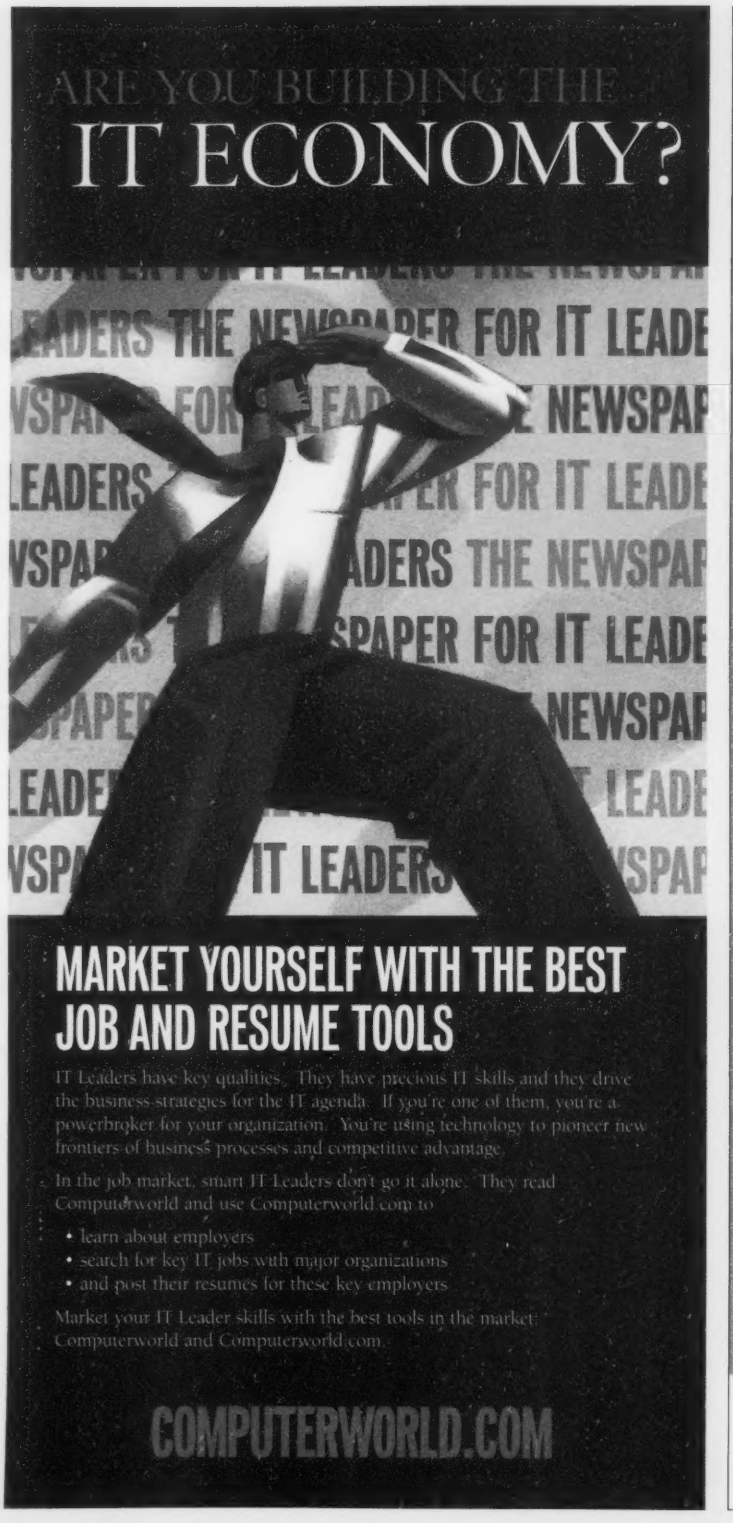
Senior Software Engineer: Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have six months of experience in job offered or as a computer professional and six months of experience using SAP. Masters degree in Computer Science/Applications, Engineering, Chemistry, Math, Physics or a business related field. Will accept Bachelors degree or foreign equivalent plus five years of progressive experience as computer professional in lieu of Masters degree. Salary is $102,500 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Ms. Charlene Cogley, Mgr., Beaver Falls Job Ctr., 2103 Ninth Ave., Beaver Falls, PA 15010: Job Order No.: 2026509.

Senior Software Engineer (2 openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have one year of experience using SAP. Masters degree in Computer Science/Applications, Engineering, Chemistry, Math, Physics or a business related field. Will accept Bachelor's degree or foreign equivalent plus five years of progressive experience as computer professional in lieu of Masters degree. Salary is $100,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. Richard Introcaso, Mgr., Beaver County Job Center, 120 Merchant St., Ambridge, PA 15003: Job Order No.: 9098848.

TPF PROGRAMMER ANALYSTS needed for analysis, coding & testing of real-time software modules on a Multi-Host CRS (Computerized Reservation System); to plan and implement migrations and software upgrades for TPF (real-time Transaction Processing Facility) projects using TPF Assembler and TPFDF (the TPF Database Facility). Four yrs of exp. Is required. Must have proof of legal authority to work in the U.S. Salary: $90,000/year for a 40-hour work week. Send resume to the Colorado Department of Labor & Employment, Two Park Central, Ste. 400, 1515 Arapahoe Street, Denver, CO 80202-2117. Refer to Job Order #CO4628496. Ad paid by an Equal Opportunity Employer.



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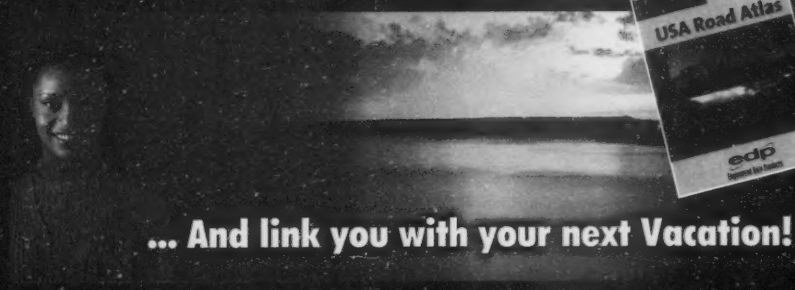

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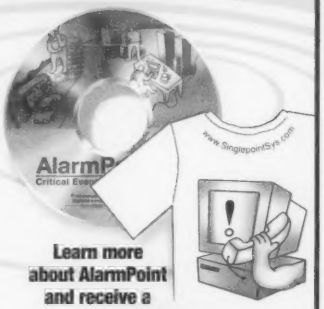

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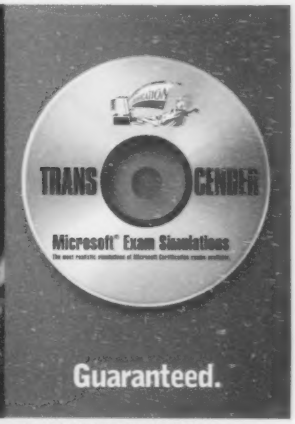

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Firms wishing to obtain a copy of the Request For Proposal should retrieve it from the following url: http://www.wa.gov/dis/interactive/ecommerce/procurements.htm. Firms wishing to attend the mandatory pre-proposal conference in Olympia, Washington should contact Denise Mills at (360) 902-3099 or denisem@dis.wa.gov. Applicable Washington State law and rules can be found at http://www.secstate.wa.gov/ea/default.htm

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IBM Posts Second Strong Showing

But year's end could be tough on profits

BY MATT HAMBLEN

IBM (NYSE:IBM) reported a strong second quarter last week that followed a healthy first quarter, but analysts warn that the last half of this year could be tougher on Big Blue.

The company cited strong revenue across all business lines in its results, which exceeded analysts' expectations. Revenue was $21.9 billion, up 16.4% from $18.8 billion in last year's second quarter.

INDUSTRY ALMANAC

Net income rose 65% from the same quarter a year ago, from $1.45 billion to $2.39 billion.

Following news of the positive quarters at IBM and Microsoft Corp., share prices decreased somewhat as investors cashed in on profitable stocks. IBM, which had been trading as high as $139 per share, fell to $127.50 the day after last week's news. Its 52-week low was $55.30 last summer.

"IBM's revenues were stronger than we thought they'd be, and hardware was obviously very strong," says Jeff Maxick, an analyst at Madison Securities Inc. in Chicago.

Maxick notes that IBM can't get parts fast enough to support its ThinkPad laptop line, which several analysts have called the most popular fully functional computer of all time.

Revenue for all IBM personal systems, which includes PCs and laptops, jumped 50%, while servers were up 3%, services gained 14.6% and high-end enterprise investments rose by nearly 17%.

Success in Services

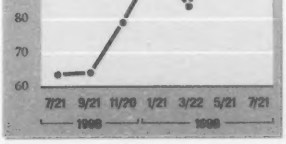
But the secret to IBM's success has been its move into services, analysts say. "IBM's shift away from hardware and toward services is going ... a lot faster than anyone would have guessed," says Sheldon Grodsky, an analyst at Grodsky Associates Inc. in South Orange, N.J.

Several analysts caution that IBM, like other big computer companies, could face a softer year's end compared with the last half of 1998, which was strong. In addition, "Year 2000 could have a quirky affect," Grodsky says.

IBM management predicts no Y2K-induced slowdown. But Steve Milunovich, an analyst at Merrill Lynch & Co. in New York, says year 2000 could "potentially restrain" IBM's fourth-quarter performance.

IBM Ascendant

IBM's stock price has more than doubled in the past year:



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SOFTWARE OFF -7.9%						
ADBE	93.62	23.62	Adobe Systems Inc. (H)	86.00	-4.13	-4.6
AZPN	56.87	6.12	Aspen Technology Inc.	12.13	0.25	2.0
ADSK	49.43	21.62	Autodesk Inc.	26.06	1.44	-5.2
AVID	38.87	11.06	Avid Technology	13.13	-5.13	-28.1
BOBJ	49.50	6.12	Businesss Objects S.A. (H)	47.00	5.38	12.9
CDN	36.00	10.62	Cadence Design Systems	15.75	-5.06	-32.0
CBTSY	61.50	6.88	CBT Group Plc	29.38	5.88	25.0
CHKPT	66.37	10.87	Checkpoint Software Tech. (H)	64.63	9.00	16.2
CTAS	69.75	23.12	Citrix Systems Inc.	49.63	-14.41	-22.5
CGEN	28.12	14.75	Cognex Inc.	20.25	0.88	4.1
CA	61.93	26.00	Computer Associates Intern'l	47.50	-8.31	-14.9
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EFII	60.37	13.50	Electronics For Imaging (H)	56.50	-1.56	-2.7
HNCS	46.43	13.75	Hnc Software	36.13	-2.19	-5.7
IDIC	55.75	12.43	IDX Systems	22.06	2.19	11.0
IFMX	14.00	3.50	Informix Software Inc.	7.81	-1.75	-18.3
INTU	110.75	34.18	Intuit	82.31	-15.56	-15.9
JKHY	55.00	26.43	Jack Henry Associates	41.00	-1.00	-2.4
JDEC	49.50	10.97	J.D. Edwards & Co.	16.38	1.88	10.3
LDTO	82.81	27.50	Logista Systems Inc. (H)	79.75	-1.75	-2.2
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TSAI	51.00	26.00	Trans. Sys. Arch.	31.38	-6.94	-18.1
VRTS	63.43	11.87	Veritas Software Corp. (H)	59.50	-0.75	-1.2
WIND	34.43	11.25	Wind River Systems Inc.	14.81	-2.00	-11.9
TELECOMMUNICATIONS CARRIERS OFF -3.2%						
AT	74.56	38.25	Alltel Corp.	72.31	0.50	0.7
AIT	77.25	63.37	Ameritech Corp. (H)	73.63	2.94	3.8
ANDW	22.87	10.37	Andrew Corp. (H)	21.81	0.06	0.3
T	64.12	32.25	AT&T	53.94	-1.56	-2.8
BCE	52.68	25.62	BCE Inc. (H)	47.50	-4.75	-8.2
BEL	66.93	40.43	Bell Atlantic (H)	65.81	-0.81	-1.2
BLS	50.00	32.12	Bell South	47.56	2.44	5.4
CBN	26.50	8.50	Cincinnati Bell Inc.	21.50	-4.50	-17.3
CMCSK	47.56	15.81	Comcast	38.63	0.88	2.2
CQ	39.62	21.75	Comsat Corp.	36.00	0.00	0.0
COX	44.43	20.75	Cox Communications Inc.	38.38	0.63	1.6
GSTFF	33.00	8.37	Globalstar Telecom. Ltd.	31.25	0.63	2.0
GTE	78.50	48.56	GTE Corp. (H)	76.94	-1.00	-1.3
NXTL	58.31	15.37	Nextel Communications (H)	51.09	-4.91	-8.8
SPOT	53.62	26.37	Panamsat	37.69	-4.69	-11.1
QCOM	167.25	18.87	Qualcomm (H)	152.31	-5.69	-3.6
SBC	59.93	39.00	SBC Communications	57.06	-2.06	-3.5
FON	57.43	27.18	Sprint Corp.	51.25	-1.31	-2.5
TDS	79.37	30.62	Telephone and Data Systems (H)	77.50	-0.88	-1.1
UCM	66.00	47.00	US West	57.06	-2.00	-3.4
VIA	48.75	24.62	Viacom	44.00	0.69	1.5
WCII	64.43	10.25	Winstar Communications Inc. (H)	59.56	-2.94	-4.7
WCOM	96.75	39.00	MCI Worldcom Inc.	86.81	-3.50	-3.9
SERVICES OFF -4.4%						
ACXM	31.25	16.50	Acxiom Corp.	27.44	-1.88	-6.4
ACS	53.00	72.37	Affiliated Computer Servs.	50.25	-1.31	-2.5
AMSY	40.25	19.25	American Mgt. Systems	31.00	-1.75	-5.8
AUD	46.87	31.75	Automatic Data Processing	41.88	-2.38	-5.4
BSYS	60.87	35.37	Bisys Group Inc.	53.81	-2.06	-4.5
CAFP	49.75	10.62	Cambridge Technology Ptnrs.	18.00	-1.69	-8.6
CEN	40.50	24.00	Cendant	30.50	-3.13	-9.4
CBR	38.00	13.31	Ciber Inc.	17.31	-0.50	-2.8
CDO	30.87	10.75	Comdisco	25.50	0.31	1.2
CHKZ	41.75	9.25	Computer Horizons Corp.	12.88	-0.50	-3.7
CSC	74.87	46.25	Computer Sciences	69.69	-2.63	-3.6
DST	70.75	34.00	Dst Systems Inc.	67.13	-0.50	-0.7
EDS	67.37	30.43	Electronic Data Systems (H)	63.88	-2.50	-3.8
FDC	50.50	19.68	First Data Group	48.00	-1.25	-2.5
FDW	40.75	24.62	Fiserv	32.81	-2.19	-6.3
IT	34.12	17.31	Gartner Group	22.19	1.38	6.6
KEA	58.25	17.25	Keane	24.81	-2.31	-8.5
NDC	55.25	26.18	National Data	45.19	-5.56	-11.0
PAYX	36.75	24.18	Paychex Inc.	30.38	-2.00	-6.2
REGI	19.50	4.00	Renaissance Worldwide	7.44	-0.25	-3.3
REY	25.06	12.62	Reynolds & Reynolds (H)	25.06	0.50	2.0
SFE	120.00	17.12	Safegard Scientifics	64.56	-7.50	-10.4
SAPE	82.87	24.25	Sapient Corp.	57.38	-2.94	-5.4
SMS	66.50	40.06	Shared Medical Systems	54.38	-6.81	-11.1
SDS	41.93	21.68	Sungard Data Systems	29.56	-1.94	-6.2
SYNT	32.25	8.68	Syntel Inc. (H)	29.06	-0.88	-2.9
TECD	53.12	14.50	Tech Data	40.50	-4.00	-9.0
TSS	26.25	14.43	Total System Services Inc.	17.81	-0.13	-0.7
TSAI	51.00	26.00	Transaction Sys. Architects	31.38	-6.94	-18.1
NETWORK OFF -9.8%						
COMS	51.12	20.00	3Com Corp.	24.94	-2.94	-10.5
ADCT	53.62	15.75	ADC Telecommunications Inc.	43.06	-4.00	-8.5
ANTC	42.43	11.50	Antec	38.63	-1.00	-2.5
BNYN	19.37	7.12	Banyan Systems Inc.	9.94	-1.44	-13.9
CS	16.31	6.62	Cabletron Systems	12.94	-1.63	-11.2
CNEBF	17.53	4.19	Call-Net Enterprises (L)	4.19	-2.31	-35.6
CSCO	69.75	20.56	Cisco Systems Inc.	61.38	-5.00	-7.5
ECIL	45.00	19.25	ECI Telecom	35.31	-3.06	-8.0
HRS	41.75	27.31	Harris Corp.	35.50	-2.69	-7.0
GMH	63.87	30.37	Hughes Electronics/GM	57.94	-2.13	-3.5
ERICY	34.12	15.00	LM Ericsson	31.56	-2.75	-9.5
LU	79.75	28.68	Lucent Technologies (H)	67.38	-12.13	-15.2
MADGF	5.18	1.75	Madge Networks	3.03	-0.41	-11.8
NCDI	8.50	4.25	Network Computing Dev.	4.81	-0.19	-3.8
NWK	17.00	7.31	Network Equipment Tech.	9.81	-0.06	-0.6
NN	39.87	15.43	Newbridge Networks	24.44	-3.50	-12.5
NOK	99.37	29.50	Nokia Corp. (H)	87.81	-9.56	-9.8
NT	94.12	24.81	Northern Telecom Ltd.	85.69	-8.19	-8.7
PAIR	15.12	6.00	Paircgain Technologies Inc.	9.50	-1.25	-11.2
PCTL	11.00	4.31	Picturetel	9.13	-0.44	-6.7
SFA	41.25	11.75	Scientific Atlanta	38.38	-2.19	-5.4
TLAB	74.00	15.68	Tellabs Inc. (H)	60.75	-12.90	-17.1
USW	66.00	47.00	US West	57.06	-2.00	-3.4
VRLK	8.62	2.12	Verilink	2.75	-0.75	-21.4
WSTL	11.18	2.75	Westell Technology Inc.	7.69	-1.31	-14.6
SEMICONDUCTORS, CHIPS & EQUIPMENT OFF -9.0%						
ADPT	42.87	7.87	Adaptec (H)	39.06	-2.19	-5.3
AMD	33.00	9.31	Advanced Micro Devices	16.31	-1.25	-7.1
ALTR	46.87	14.56	Altera	37.94	-3.75	-9.0
ADI	51.00	12.00	Analog Devices	42.94	-6.25	-12.7
AMAT	79.93	21.56	Applied Materials (H)	70.06	-8.94	-11.2
ASML	69.62	17.93	ASM Lithography Holding (H)	57.75	-11.06	-16.1
HRS	41.75	27.31	Harris Corp.	35.50	-2.69	-7.0
INTC	71.87	34.87	Intel Corp.	63.56	-3.81	-5.7
KLAC	73.06	20.75	Kla Instruments (H)	63.50	-8.38	-11.7
LLTC	75.75	19.56	Linear Technology	41.56	-12.44	-16.8
LSI	53.62	10.50	LSI Logic (H)	49.81	-1.44	-3.0
MXIM	73.50	22.31	Maxim Integrated Products	61.00	-9.81	-13.9
MU	80.56	20.25	Micron Technology	50.69	-3.50	-6.5
MOT	100.18	38.37	Motorola	90.50	-6.00	-6.1
NSM	29.18	7.43	National Semiconductor	25.00	-3.50	-12.3
STM	78.62	17.93	SGS-Thomson Microelectronics	64.38	-12.25	-16.0
SUNW	73.25	19.37	Sunetrnn Corp.	63.75	-6.56	-9.3
TEK	79.25	15.00	Tektronix	70.63	-5.50	-7.2
TXN	155.37	45.37	Texas Instruments (H)	133.19	-13.56	-8.9
JDSU	177.43	31.25	Uniphase	157.00	-14.44	-8.4
VTSS	72.87	17.12	Vitesse Semiconductor Corp.	59.81	-6.81	-10.2
XLNX	65.12	14.87	Xilinx (H)	58.75	-5.81	-9.0
COMPUTER SYSTEMS OFF -4.6%						
AAPL	58.75	28.50	Apple Computer Inc.	52.94	-0.94	-1.7
ASPX	13.31	1.62	Auspex Systems (H)	10.00	-1.13	-10.1
CPQ	51.25	20.00	Compaq	34.50	-2.81	-10.3
DGN	21.81	7.00	Data General	18.63	-1.25	-7.9
DELL	55.00	20.37	Dell Computer Corp.	41.56	-2.88	-6.6
GTW	84.50	36.12	Gateway 2000 Inc.	71.44	0.06	0.1
HWP	118.43	47.06	Hewlett-Packard Co. (H)	108.25	-6.25	-5.5
HIT	109.93	40.18	Hitachi Ltd.	94.56	-9.63	-9.2
IBM	139.18	55.37	IBM	124.50	-12.63	-9.2
MUEI	24.75	9.00	Micron	12.44	-1.06	-9.7
MOT	100.18	38.37	Motorola	90.50	-8.00	-8.1
NATI	47.25	17.50	National Instruments Corp.	47.00	-4.50	-10.6
NCR	95.75	23.50	NCR	47.94	-4.31	-8.3
NIPNY	81.75	31.00	NEC (H)	73.00	-4.75	-6.1
PRCM	13.25	3.43	Procom Tech Inc.	9.75	0.25	-2.8
SQNT	19.00	0.68	Sequent Computer Systems	17.25	0.25	1.5
SGI	29.87	7.37	Silicon Grafix.	16.50	-0.19	-1.1
SNE	126.87	60.25	Sony	116.38	-9.63	-7.6
SUNW	76.43	19.18	Sun Microsystems	69.81	-6.06	-8.1
TEXM	8.87	2.00	Texas Micro	8.06	-0.38	-4.4
TRCD	4.87	0.37	Triord Systems	3.62	-0.38	-11.5
UIS	46.18	17.62	Unisys (H)	41.56	-3.75	-8.3
INTERNET OFF -9.9%						
AMZN	221.25	21.75	Amazon.com	105.63	-33.88	-24.3
AOL	175.50	17.75	America Online	106.75	-14.75	-12.1
AFHM	99.00	0.75	Xhome Corp.	44.13	-2.88	-6.1
CKFR	69.12	5.75	CheckFree	27.13	-3.56	-11.7
CYCH	34.87	5.87	Cybercash Inc.	10.50	0.13	1.2
EDFY	16.87	3.81	Edify Corp.	11.06	-2.44	-18.1
EGRP	72.25	2.50	E*Trade Group Inc.	31.13	-6.88	-18.1
INFX	100.00	14.87	Infoseek	33.69	-3.28	-7.8
LCOS	145.37	20.06	Lycos Inc. *	93.94	-11.81	-11.2
OMKT	27.00	4.25	Open Market Inc.	14.81	0.19	1.3
OTEX	42.50	10.00	Open Text Corp.	31.13	-2.88	-8.5
PSIX	73.75	8.37	PSINet Inc.	57.44	-7.31	-11.3
SDTI	30.62	5.43	Security Dynamics	18.94	-1.94	-9.3
SPYG	32.25	8.62	Spyglass Inc.	15.63	-1.38	-8.1
YHOO	244.00	29.50	Yahoo Inc.	184.94	-7.81	-5.1
STORAGE & PERIPHERALS OFF -5.9%						
ADPT	42.87	7.87	Adaptec Inc. (H)	39.06	-2.19	-5.3
APCC	27.75	13.12	American Power Conversion	21.50	-1.13	-5.1
CANNY	33.62	17.00	Canon Inc.	30.38	-1.75	-5.8
DBD	39.87	19.12	Diebold Inc.	29.69	-0.44	-1.5
EK	88.75	60.81	Eastman Kodak Co.	70.63	-1.38	-1.9
EMC	67.50	20.81	EMC	61.06	-3.44	-5.3
IOM	10.18	2.93	Iomega	4.78	-0.44	-9.3
LXK	74.37	25.37	Lexmark International Group Inc.	50.44	-5.69	-8.6
QNTM	29.93	10.81	Quantum	23.69	-2.31	-8.9
SEG	44.25	16.12	Seagate Technology	25.56	-1.25	-4.7
STK	51.12	17.25	Storage Technology	22.69	-3.69	-14.0
TEK	33.31	13.68	Tektronix	29.94	-1.50	-5.3
XRX	63.93	38.00	Xerox	50.00	-8.88	-15.1

KEY: **(H)** = New annual high reached in period
(L) = New annual low reached in period

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Microsoft Trades Desktop Vision for Online Road Map

BY SHARON GAUDIN

MICROSOFT CORP. has shed its PC-centric focus in favor of a vision that encompasses online ventures and electronic devices, which the company believes will maintain its technology dynasty long into the new century.

That's the road map Microsoft executives laid out to attendees at its annual financial analyst meeting last week.

"We had to ask ourselves if the fundamental vision — a PC in every home and on every desktop — that we had for this company was still right, still appropriate," said Microsoft President Steve Ballmer. "We decided it wasn't. . . . We have to empower people through great software anywhere, anyplace, anytime."

Ballmer and Microsoft CEO Bill Gates partially sketched out the following road map:

- Gates said Microsoft will make its Windows platforms Web-centric by issuing a set of Internet application programming interfaces that developers will use to write Web-based Windows applications.
- Microsoft is recommending that PC manufacturers make telephone services a part of their PCs in the next year.
- Both Gates and Ballmer said Microsoft will continue its focus and financial expenditures in the wireless world and the realm of set-top boxes.

The Microsoft executives declined to provide further details on either the "new vision" or a "Web-centric" Windows.

Balancing Act

"Microsoft is busy trying to balance their old vision with one that will actually work for them," said Neil MacDonald, a vice president at Gartner Group Inc. in Stamford, Conn. "They're trying to hold the fort on the desktop, and they've spent more than $5 billion in the last year on wireless and set-top-box deals. They're buying a seat in the game."

"It's no longer going to be OK for applications that only run on Windows," said MacDonald. "You can run a Microsoft shop in-house, but you can't tell your customers, who you're trying to reach over the Internet, that they have to have an NT server. . . . Adding [Extensible Markup Language] or HTTP would help them with that." ◗

Continued from page 1

Licensing

and Silicon Valley attorney.

UCITA, formerly known as Article 2B of the Uniform Commercial Code, is being developed by the National Conference of Commissioners on Uniform State Laws (NCCUSL). It's intended to bring uniformity to laws surrounding the sale and support of commercial software.

Critics said users will be hurt by various provisions, such as one that would let a vendor electronically shut off a customer's system if it believed the buyer had violated part of the licensing agreement.

"Being able to disable software remotely is something that I would be very opposed to, because I don't want any vendor to have a back door to my installation. Period," said Bruce Johnson, director of information services at the law firm Robinson Silverman Pearce Aronsohn & Berman LLP in New York.

Other sections of UCITA that scare users are provisions that would stop customers from doing "reverse engineering" — exploring code to figure out how it works and then re-creating it.

The proposal "would make it easier [for vendors] to produce bad software" and escape their legal liabilities, said Barbara Simons, president of the Association for Computing Machinery, a New York-based association of 80,000 computing professionals.

For example, UCITA would allow vendors to sell shrink-wrap software "as is," with only warranties.

Not all users are against UCITA. In a letter dated July 5, Paul R. Eichbauer, assistant general counsel at Daimler-Chrysler AG, wrote the NCCUSL to express support for the proposed legislation, noting that it "strikes a fair balance between licensor and licensee interests."

Other users are disturbed by a UCITA provision that makes shrink-wrap software licenses enforceable, even though customers wouldn't get to see the licenses until after they buy and open the package.

But Mark Nebergall, vice president and counsel of the Software and Information Industry Association in Washington, argues that UCITA fills a void in existing commercial law and, in some cases, offers users more protection.

For example, current law already lets a vendor remotely disable software in case of a breach of contract, Nebergall said. UCITA would require a vendor to provide a 15-day advance notice before taking any action. ◗

MORE THIS ISSUE

Warning for IT: Prepare to fight UCITA laws, says **Dan Gillmor**, **see page 32**.

As Bill Matured, Users Not Heard

A big problem with the development of UCITA, critics said, is that users' voices are being tuned out.

Typically at UCITA meetings, two or three advocates speak up for corporate users, software developers or consumers – while another "hundred folks speak out on behalf of software, movie and book publishers," said Cem Kaner, a user advocate and lawyer. Co-author of the book *Bad Software* (Wiley, 1998), Kaner has been attending UCITA meetings since 1996. Kaner said the result is that "when we propose compromises or alternatives, they don't get passed."

Plus, the few user and trade groups opposing UCITA aren't well-organized and aren't savvy lobbyists. As Association for Computing Machinery President Barbara Simons put it, "We don't have huge sums of money. We're not taking any [politicians] out for lunch or making political contributions."

– *Thomas Hoffman*

Continued from page 1

Compaq CEO

work needs to be done. "We've gone through a period of very complex integrations," he said, "and a lot of energy needs to be spent on them."

Compaq has been reeling since former CEO Eckhard Pfeiffer was forced out in April, after Compaq's first-quarter profit was less than half of analysts' predictions. Six top executives have since left the company. Analysts said Compaq is expected to post a second-quarter loss of $250 million in its report this Wednesday.

Capellas wouldn't discuss earnings last week. He focused on future moves, including a global reorganization into three units that he announced as chief operating officer last month [News, June 21].

Capellas said he's committed to expanding a nascent direct-sales model to 40% of sales. He said he would preserve Digital's service component and develop high-end computing operating systems such as Himalaya Non-Stop Kernel and true, 64-bit Unix and OpenVMS. More product initiatives will be announced Aug. 15, he said.

Globally, about 15,200 Digital jobs have been cut since Compaq's purchase, with another 1,800 to go, Capellas said.

Asked about Compaq's loss of major customer accounts, Capellas said reports haven't noted "that we've also had a lot of great wins."

For example, Nike Inc. in Beaverton, Ore., announced a multiyear, multimillion-dollar commitment to standardize on Compaq PCs and laptop (see story, page 12).

However, other users aren't happy with Compaq. "More than just a few major accounts," especially in Europe, have defected to Dell Computer Corp. and IBM, said analyst Rob Enderle at Giga Information Group Inc. in Mountain View, Calif.

Dennis Harvat, IT manager at Gillette Co.'s stationery products division in Santa Monica, Calif., said his division has moved away from Compaq to Dell and Gateway desktops and laptops in the past year. "We've felt uncertain about Compaq's direction since its acquisition of Digital," Harvat said.

Another user, Thomas Pearey, IT director at West Anaheim Medical Center in Anaheim, Calif., said his management requires him to purchase Compaq PCs, but the PCs with Celeron processors are proving hard to upgrade with network cards — more difficult than promised. "Compaq won't own up to that, even though we've made several complaints," Pearey said. ◗

MORE THIS ISSUE

Hewlett-Packard names a new CEO, **see page 29**.

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FRANK HAYES/FRANKLY SPEAKING

The Y2K basics — one more time

FIRST THINGS FIRST: Two weeks ago, while thanking Y2K-fix teams for their efforts, I wrote, "And 98% of banks are ready, automated teller machines and all, according to federal bank examiners. On Jan. 1, it appears nothing will go wrong." That's wrong — 98% of U.S. banks are rated "satisfactory" in their Y2K progress, which is very different from being year 2000-ready. That's my fault, and I regret the error.

But from the reaction of some Y2K propheteers, you'd think I declared their favorite catastrophe over, the battle done, the fixes complete.

That's ridiculous. I never wrote any such thing, and no *Computerworld* reader would believe it anyway. Most corporate IT shops are waist deep in fixing year 2000 bugs and testing. The rest are neck deep — at least. Plenty of long hours and bleary eyes are in evidence in IT shops these days, but no complacency about Y2K.

The catch, of course, is that these days, corporate IT people aren't the only ones reading *Computerworld*. So along with the messages of appreciation from Y2K IT workers (my favorite read simply, "You're welcome"), I got some amazingly offensive, offended e-mail from people who read that column by way of non-IT Y2K Web sites.

They didn't call me any names I haven't heard before. Remember, I've written about Linux, too. But they seemed to figure that, because I said there was something to be thankful for in our Y2K status, I must be some kind of starry-eyed Pollyanna who thinks there's no Y2K problem.

So, just in case they're still listening — and in case this column's *real* audience needs a reality check to toss in the direction of executives, business types and others among the potentially clueless — let's walk through the basics one more time.

Most IT shops did their Y2K fixes without screwing up.

Y2K is real. All told, it will cost a trillion dollars in hardware, software, labor and lost business.

Y2K bugs won't all be fixed in time. Most critical systems will be fixed. But everything? No way. And the work won't be over when we pass the deadline. We'll still be cleaning up the last of this mess five years from now.

Y2K has cost real businesses real money. Problems with credit cards, magazine subscriptions, annual memberships — anything that already points to 2000 and beyond — have meant lost sales and aggravated customers. And more than two-thirds of businesses have already hit some kind of year 2000 problem, according to a Cap Gemini America study.

Y2K always gets the blame. All big, new computer systems have year 2000 compliance in the requirements. Many big, new systems fail — just as they always have. But all such failures are tagged as Y2K failures these days — whether the problem was really year 2000-related or not.

Most high-profile Y2K disasters have been triggered by fixes and tests gone awry . . . A sewage spill in a Los Angeles suburb, lost luggage at Air France, a citywide water shutoff in Wisconsin — all were caused by year 2000 repairs, replacements or tests that went wrong.

. . . But it could be far, far worse. Most IT shops have managed to do their Y2K fixes without screwing up or blowing a hole in the business. For that, they deserve an "attaboy" — it's not as easy as it seems to kibitzers. Just ask anyone on those sewage-drenched streets in California.

Everyone should be prepared for disaster – any disaster. It doesn't take Y2K to cut off water, power, gas and food. Hurricanes, tornadoes, ice storms, floods and earthquakes can do that — and they won't wait for Jan. 1. ◗

Hayes, Computerworld's staff columnist, has covered IT for 20 years. His e-mail address is frank_hayes@computerworld.com.

SHARK TANK

LEADING INDICATOR A friend of the Tank reports the neighbors are watching his every move. They know he's in charge of Y2K work for a local utility; they want hints to figure out what's in store come Jan. 1. "I plan to replenish my wood pile this fall," he says. "I imagine the neighborhood will panic."

A CHILLING LITTLE reminder of how much the Defense Department's Information Management Officers resemble CIOs: A lot of them "have just been given that title. They don't know what they're doing; they don't have the training." Thanks to a Tankster whose base and title will remain a military secret.

LINES AROUND THE BLOCK. Three-month waits. That's what British Passport Agency offices ended up with after putting in a new computer system. Now Sharky hears the government agency is being stripped of its Charter Mark, the prestigious customer-service award it has held since 1992. This time, it's not just IT heads that will roll; looks like the boss, Immigration Minister Mike O'Brien, will get the chop, too.

SHARKY'S IDEA of a post-Y2K vacation includes as little technology as possible. But an outfit called Geek Cruises (*www.geekcruises.com*) is rounding up techies who want to combine a course in Perl programming with a weeklong boat trip to Alaska, leaving next Memorial Day.

The Shark's in-laws took a similar cruise, sans Perl, and said the views were spectacular. Thanks, but Sharky will stick with baseball and a code-free backyard barbecue.

"DNS poisoning" is what one expert said caused prospective visitors to *www.hillary2000.org* – Hillary Clinton's New York Senate campaign site – last week to end up at *wwwhillaryno. com*, a site run by the Friends of Giuliani. No sympathy here for either side, but if they can hack a politician's domain name, they can hack yours and mine, too. If you're hacked off at a boss, vendor or even politician, let Sharky know: **sharky@computerworld.com.**

The 5th Wave

E-mail Rich Tennant at the5wave@aol.com

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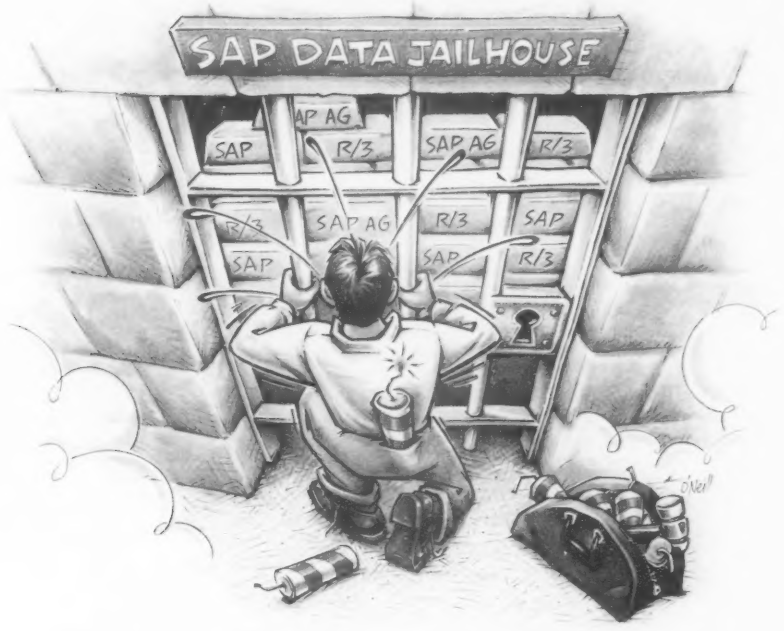

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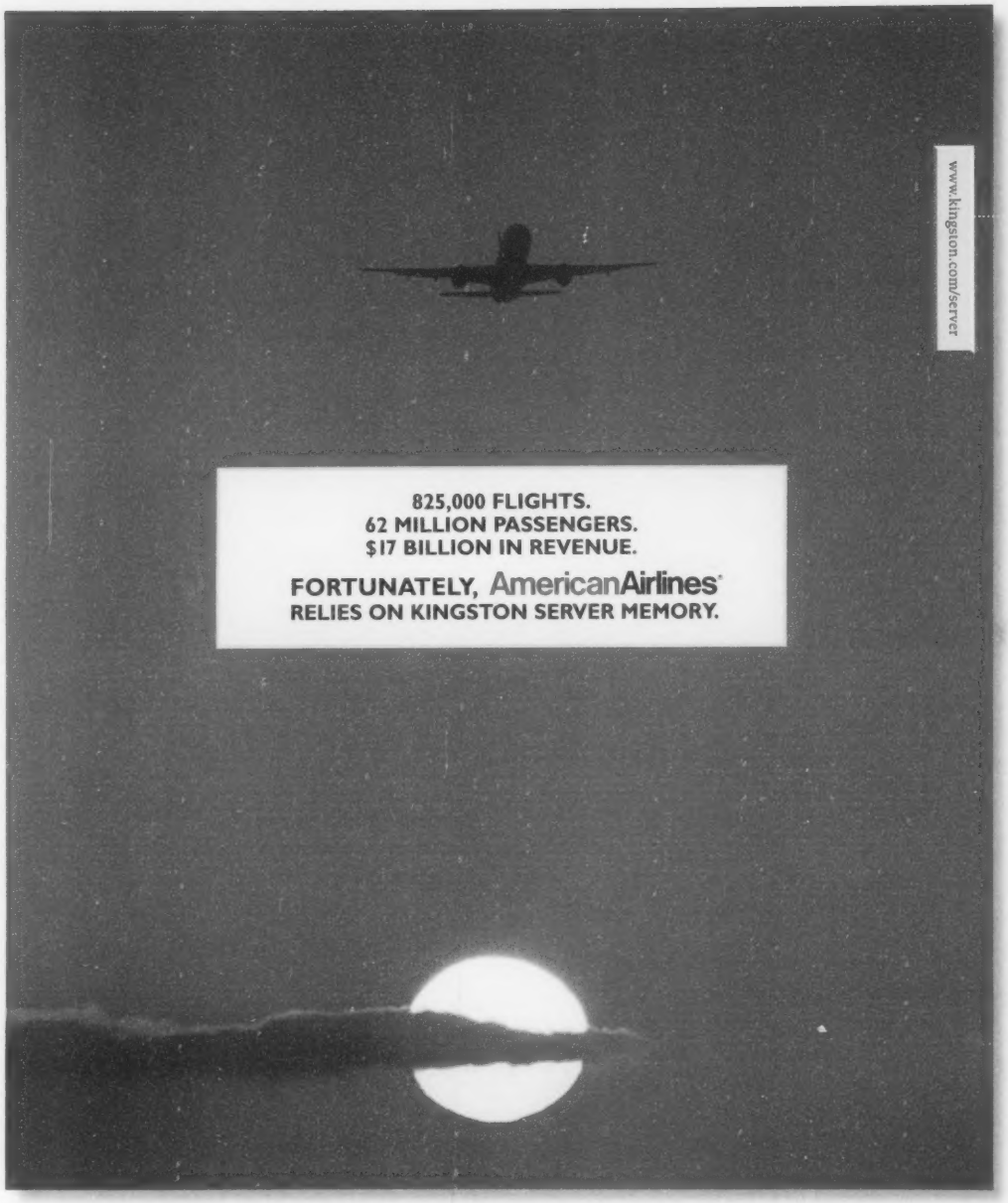

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